

Perceptions, Attitudes and Preferences in Forests and Woodlands

Terence R. Lee



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Part 1

The background to the study

1. Introduction

Increased attention to and concern about the conservation and enhancement of the environmental quality of landscapes in Britain today has meant a growing recognition of the need for public involvement in the determination of environmental and recreational policy. With anything up to one third of the land currently farmed having to be taken out of agricultural production over the next forty years, it is widely recognised that an understanding of public attitudes towards the most commonly projected alternatives, tourism, recreation and afforestation, is needed to guide policy makers. These changes in land use policies coincide with a steady increase in the use of the countryside as a recreational amenity and in positive attitudes towards its conservation.

This study was sponsored by the Forestry Commission, the Countryside Commission for Scotland (now Scottish Natural Heritage) and the Countryside Commission for England and Wales (now the Countryside Agency). It was designed to provide the sponsors with up-to-date information about which elements of landscape are salient for ordinary people, to determine if the views expressed by vocal and articulate interest groups reflect those of the wider public and to gain a better understanding of the pattern of public attitudes and preferences.

There is obvious scope for interdependence between all of the projected land uses discussed above, given appropriate foresight and planning. This research is designed to give the policy makers information to aid them in the decisions that must be made.

The widest issue that is addressed in the research, albeit implicitly, is the appropriate mix of public preference and expert judgement in shaping the environment. In a sense, this is a political issue, involving values, and hence one that has ultimately to evolve through the normal democratic processes. However, it is clear that in land use planning in general and forestry management in particular, advocates can be found both for exclusive professional control and for extensive public consultation.

The former would argue that the public lacks the necessary knowledge and cannot actually be identified, let alone be given control. The latter would argue that the forests are for the people and their preferences should therefore be paramount. This question of the public's participation in the planning process is so central to the research that it merits some discussion in this introductory section. This question of principle will then be followed by one of pragmatics; if it is conceded that the public has a role, is it possible to measure their aesthetic preferences?

1.1 Public participation*

The British tradition of liberal democracy, going back to the Greeks, includes the implicit assumption that citizens should play a part in government by being educated and informed enough to set values and specify goals. Most people think democracy has been highly successful by comparison with some other systems and, since the post-war emergence of town and country planning, there has been a steady movement towards greater involvement by the people.

The ideological high point was probably in the heady Sixties when the Skeffington Report (1969) made strong recommendations for public participation and spelt out a range of techniques. Much of Skeffington has been assimilated into practice and some of the forms of public participation have become statutory duties or are now fairly commonplace.

The Forestry Commission has no statutory obligation to consult over woods and forests, but the public has, over the years, been outspoken on the subject. From the times of the early irate protests over 'foreign' plantations there have been passionate communications ranging from letters to *The Times* to full scale assaults in books, and some of the special interest groups concerned with wildlife, heritage or countryside recreation have expressed strong opinions and, by mutual consent, are in continuous dialogue with the Forestry Commission.

* This section is reproduced with minor amendment from Lee (1989).

For its part, the Forestry Commission does have an explicit commitment to the public that goes well beyond timber production, as will be noted from a statement by the Operations Commissioner, David Foot:

“Our keenest perception of woodlands is for their place in the landscape - not only for wood production - but as a place of quiet tranquillity, for open air recreation or as a sanctuary for wildlife. The pioneer planters who set about restoring woodlands and forests after the First World War could hardly have envisaged the growth of leisure time and its effects on public attitudes and expectations.” (Foot, 1988)

Despite all this, those engaged in local government will know that the move towards public participation has been a bumpy ride. There are many reasons for this, but some of them are particularly relevant to our subject. On the one hand, citizens are becoming more assertive over their rights and more politically articulate and capable. They have learned how to use pressure groups to great effect and, indeed, where their own backyard is concerned, they have devised a new and powerful piece of constitutional machinery in the form of the organised non-violent protest group. Politically, British society is increasingly pluralistic and we are apparently tolerant of this.

Conversely, the growth of a hierarchical bureaucratic system of government into larger units has led to the fragmentation of previously commonplace tasks into highly developed specialisms and the emergence of organised cadres of professional experts who overlap in uncertain ways with the elected representatives.

This is mentioned particularly because planners and landscape architects are classic cases. Most of the appraisal of the scenic quality of forestry landscapes has passed from the hands of the pioneer planters into the virtual control of such experts, and this is characteristic of much local government.

In the case of landscape, there is reason to suppose that the move has been beneficial, but it has distanced the ordinary person and even his elected representative from the action. Meanwhile, the public's sense of proprietorial rights over its local territory and wider environment grows stronger by the day. It can be argued that the most sophisticated stage in the development of these new areas of expertise is now to devise ways of measuring public preferences and incorporating them in the

decision process. There is every sign of willingness on the part of Forestry Commission landscape architects at least to take this bold step.

However, in some areas public participation has been no more than a fine tuning for what was intended anyway, and in other areas it has been a cynical manipulation or a mere legitimisation of expert decisions. It is to be hoped that this will not apply to woodlands and forests.

If public participation prevails, it will be partly due to an increasing awareness that the absolute basis for aesthetics is at best skeletal and that most of the flesh is added by personal associations and experience, filtered through cultural norms. If landscape appreciation is in the eye of the beholder (and there is sufficient evidence for this from cross-cultural studies and even from the very recently emerging studies in Britain) there are very strong reasons for taking public preferences into account in the planning process.

All this begs the question whether scenic beauty and aesthetic preferences can be measured reliably and some comments on this follow.

1.2 Can scenic beauty be measured?

Some critics would assert that the scenic beauty of a landscape is intuitively experienced through the senses and any attempt to analyse it is vain; this because the act of dissection destroys the quintessential quality which lies in its wholeness. The same argument is regularly applied to buildings and to works of art and, as a description of people's actual experience, it cannot be faulted.

It is also a fact of experience that even 'expert' aesthetic judgements, when they are expressed, show quite wide variation and this is nowhere more evident than in disputes over land use planning. Less cynically, there are also cultural differences in the evaluation of beauty that appear to stem from different life experiences and contemporary values. There is bound to be social conditioning and relativity and there is certain to be mutual influence between what is beautiful and what is valued for other reasons. A farmer would be less likely than a gamekeeper or a rambler to see beauty in a barren, unkempt, apparently unproductive moorland.

Notwithstanding, we do preserve the notion of an underlying aesthetic that has basic appeal to all. The problem is who is to be the judge of it. Again, one answer to this is the 'expert', i.e. one

who has studied carefully the full range of stimuli and who has devoted much thought to comparing them. But the public has a growing scepticism of experts, not only because they differ among themselves and there is no way of choosing the 'correct' one, but also because the very fact that is alleged to give them the edge, i.e. their special interest, is also thought to develop in them elitist inclinations that are different from the inclinations of the majority of consumers.

The counter argument, which has considerable historical backing, is that these very inclinations are closer to 'real beauty' than public taste and will, therefore, lead the way for the majority to follow. Most ordinary people are not averse to this presumption and they retain a degree of deference towards the expert. While asserting that they 'know what they like', they are willing to learn from the expert. However, they increasingly seek assurance that the expert is on the right lines and there are three simple tests they would apply. Firstly, do the assessment experts agree? Secondly, if they do not, is there a way of judging which one is right? Finally, can their expertise be shown to have some theoretical basis or, at least, plausible structure so that it can be evolved and passed on to the next generation?

None of these tests can be made unless judgements are at least sorted into categories, e.g. good/bad; beautiful/ugly; in scale/out of scale. This is the simplest form of measurement allowing comparisons. The more complex quantification attempted in this study is no more than an extension of this process.

Before proceeding, we should briefly overview the many previous attempts to address these issues.

2. Alternative models in landscape assessment

The aim of this section is to summarise briefly the assessment methods currently utilised by researchers and professionals and to provide background and support for the methodological approach of the present research. More detailed reviews are readily available in the literature (Knopf, 1987; Zube *et al.*, 1982; Daniel and Vining, 1983; Feimer, 1983).

Reviewing the relationship between the perceiver and the environment in assessment methodologies, it is clear that there are major theoretical differences. Every landscape

assessment methodology acknowledges that both individuals and the physical environment have a role in determining landscape quality, but the various models place markedly different emphasis on the nature and contribution of each.

On the one hand, evaluations of the objective, physical properties of the setting are made as if they were independent of human perceptions. On the other, subjective approaches assume that the setting can be assessed wholly in terms of the respondent's psychological associations. Within the latter approach, large differences are apparent in the *degree* of involvement of the observer's perceptions, feelings and interpretations; within the former, in the attributes of the landscape that are judged to be aesthetically relevant (Wohlwill, 1976).

2.1 The 'expert' or formal aesthetic model

A lack of emphasis on perception is most evident in the expert approach, with its focus on the physical elements of landscape as the basis of aesthetic quality. The current methods of assessment employed by professionals are concerned with evaluating the visual impressions of the landscape with respect to quality standards. They are largely motivated by the pragmatic concerns of planning and design.

Daniel and Vining (1983) describe the method which they label the 'formal aesthetic' approach to landscape assessment. It assumes that the quality of the environment is determined by aesthetic physical features without human involvement, or at least by taking human response as a constant. The properties which determine environmental quality are believed to transcend different landscapes and landscape types.

The rationale has its roots in classical aesthetics. A landscape is assessed in much the same way as one might assess a work of art. Value is assumed to be inherent in the basic features or properties of the landscape which include forms, lines, colours and textures. The relationships between these properties are assessed in terms of diversity, harmony, unity, contrast and similar organising principles.

Minimum attention is given to the experiential nature of the landscape-person interaction. This lack of a holistic appraisal may stem partly from the difficulty of attaining the wealth of complex knowledge about individual experience of landscape perception recommended by the opposing school of thought. Both the

availability of such information and the intentions of those who commission the work may direct research and practice away from psychological or experiential approaches towards more expedient methodologies.

Powell (1981) confirms that the basic motivation behind expert evaluation is to gain information which is as objective as possible in order to facilitate planning decisions. However, she comments that such methods have met with little success in terms of their use in the actual decision making process. She cites the reason for their failure as not so much their neglect of perception as the insurmountable difficulty of achieving an acceptable degree of objectivity. The personal feelings and opinions of the professionals and subjects (where these are used) are difficult to control or exclude. In reference to one such technique employed by the Department of Transport, Powell complains that the feelings and opinions that people had about their local landscapes had been eliminated. They were deemed to be superficial deviations from the norm. 'This is unacceptable for two reasons: firstly every landscape is seen by some people as a local landscape with all the evocations of the past and so on that are implied . . . secondly, to appraise at all, some personal feelings and preconceptions must come into play' (Powell, 1981, p.17).

This protest would be supported by Rachel Kaplan (1975), a leading U.S. researcher, who stresses that 'the study of preference based variables chosen for their objectivity seems unlikely to lead to any broader understanding. Indeed, an over concern with objectivity has tended to produce myopia; theoretical sense and even commonsense are abandoned in an effort to squeeze prediction from unlikely but reliable variables' (Kaplan, 1975, p.118).

Again, the means by which physical properties are selected and the nature of the criteria used in the selection have been questioned. It cannot be assumed that the judgement of the valued criteria by the expert is correct. Zube (1973) contends that the use of these elements and the related categories of organisation represent the merely intuitive judgements of landscape architects and planners. It is then assumed that these judgements are compatible with the views of the public, despite the wide gap in roles and training.

However, the basic assumption of this approach is that beauty, as a universal immanent quality, will be experienced by

people and hence reflected in public preferences. This presumption should be tested thoroughly and not dismissed.

The evidence at present is conflicting. Some research has shown that the tastes of the public may differ markedly from the tastes of experts. For example, Sidaway (1989), reviewing the intensive qualitative interview studies carried out by the University College London (UCL) group (Harrison, Burgess and Limb, 1986, 1987), concludes that '... the gap between popular and professional values for open land appears to be a wide and growing one and [the] research challenges the conventional assumptions made by professionals'. Laurie (1975), on the other hand, argues that experts do not judge a landscape qualitatively in a different way from members of the public but that their training increases their sensitivity and enables them to draw finer distinctions and appreciate a wider range of values. Indeed, Craik (1972) reported what he termed 'impressive correlations' (greater than .66) between expert and lay panels in their assessment of particular landscapes.

The present research offers an opportunity to compare assessments of landscapes between experts and also between experts and the public.

2.2 The phenomenological or existential model

This approach may be seen to lie at the opposite pole from the expert approach in attempting to evaluate the subjective meaning of the environment for the individual. It is argued that the 'experience' of the landscape incorporates whatever features the landscape affords, releasing tactile, olfactory and auditory experiences in addition to actions, affordances and intentions. Obviously, what individuals like or value in a landscape is not limited to the purely visual realm - smells and sounds are also part of the landscape experience. It is suggested that all aspects of individual experience must be utilised, as one cannot separate the relationships and interactions of individual experience in landscape evaluation. In addition to placing considerable emphasis on current subjective feelings, this approach goes further to include the observer's history of experiences, associations, interpretations and expectations, drawing on an intimate and continuous interaction with the environment.

It has been convincingly demonstrated that these impressions can be elicited and recorded. Sidaway (1989), commenting on the UCL

project, says the evidence 'fundamentally challenges the assumptions made by many social science researchers that ordinary people cannot articulate their views, attitudes and attachments to places, nature or locality' (Sidaway, 1989, p.35).

The phenomenological approach, with its focus on landscape experience in context, is obviously admirable, but it is not practical. Even assuming one can infer common features of landscape experience through content analysis of landscape descriptions and inspection of individual landscape impressions, the approach fails to establish a quantitative or even qualitative relationship between psychological responses and landscape features. No generalisable comparisons are possible between the objective attributes and the cognitive/emotional representation of the environment.

The data can only be elicited by in-depth interviewing or by analysis of literary sources and this often extends the interview process over as many as six successive probing sessions. This produces a rich and varied harvest, but the samples are inevitably very small.

There is an understandable attraction in qualitative data - it seems to have integrity, especially to administrators who mistrust the application of statistics to human problems. However, the classic dilemma of research is that such data, which seem intrinsically valid, are virtually impossible to analyse into a useful explanation that goes beyond the environment and people sample from which they were gathered.

2.3 The psychological model

The psychological model is an approach that uses members of the public as judges of the mixture of emotional feelings evoked by different landscapes. Individuals are asked to assess each landscape by selecting from a check list of adjectives. Hence, *a priori* assumptions are made about the important psychological dimensions; some of these may be derived from qualitative enquiry, but others owe much to the intuition of the experimenter. A high quality landscape is one that evinces many positive feelings, warmth, security, relaxation, freedom or happiness. A low quality one evinces expressions of claustrophobia, insecurity, gloom, anxiety and so on. Independent groups of subjects are used to rate overall beauty or scenic quality, so that the relevance of the

'feelings' can be assessed. Probably the most notable outcome of this approach has been the identification of a feeling of 'mystery', the 'promise of further information beyond or behind' a property that is consistently associated with high quality landscapes. Stephen and Rachel Kaplan in the USA, the most active proponents of this approach, have also identified 'complexity', 'coherence' and a 'sense of spaciousness' as important.

The psychological model, then, attempts to relate subjective preferences for landscapes with preselected psychological reactions that the landscape evokes in the individual. The scenic view of a landscape is generally expected to evoke several dimensions of human response. These dimensions form the basis of hypotheses regarding the psychological features of preferred landscapes. Hence, it addresses the important theoretical question of why a member of the general public prefers one landscape over another. However, there is little systematic connection made with the physical features of the environment and this limits its application to planning and design problems.

It has been argued that the psychological variables need to be tied to identifiable, independent, measurable features of the environment to be useful. The present research takes at least one step in this direction by eliciting 'psychological' responses in the course of a social survey, so that more light can be cast on the scenic preferences measured in the survey and in the visitor centre study.

Finally, we turn to the psychophysical approach.

2.4 The psychophysical model

This approach is mentioned last as it is the one mainly used for the present research. Basically, it takes a single criterion such as scenic quality and attempts to relate that to relatively objective physical features of the environment. Only in this way, in our view, can the necessary next step be taken, i.e. incorporating public preferences into planning and design guidelines.

Many physical predictors of perceived scenic quality have been explored in past research. From these a number stand out as particularly salient. A problem for statistical analysis is that some of them are curvilinearly related to preference, that is, they contribute up to a point and then go negative.

The proportion of water in a landscape is a good example. It is powerfully influential, but once very large proportions of the scene become dominated by it, perceptions of scenic quality begin to decline. The same applies to slope and to mountainous terrain. The density of vegetation is another curvilinear variable. Although positively related, it has to allow for an unobstructed view and some open space. The problem of curvilinearity applies not only to the physical elements in the landscape but also to their interrelationships. For example, Berlyne (1971) in experimental studies of aesthetics, confirmed the classical view that complexity is curvilinearly related to beauty.

The prediction equation used is characteristically a multiple regression model, in which weighting factors are calculated by which each physical variable has to be multiplied to provide, when all are combined, the best prediction of scenic quality. An example of this approach is the study by Shafer *et al.* (1969) which yielded a regression equation for the following physical parameters:

- X_1 - perimeter of immediate vegetation (trees/shrubs) zone
- X_2 - perimeter of immediate non-vegetation (rocks, soil, grass, snow, etc.) zone
- X_3 - perimeter of distant vegetation (i.e. where only general form is visible)
- X_4 - area of intermediate vegetation (i.e. where outlines but not detail are distinguishable)
- X_5 - area of distant non-vegetation zone (i.e. where only general form is visible)
- X_6 - area of any kind of water

Although this kind of model bears up well to tests of reliability and validity (i.e. when checked against scenic preference) it makes little intuitive sense and, as the fate of the well known but little used 'Manchester Study' (Robinson *et al.*, 1976) attests, it does not commend itself to practical application or decision making policy.

It is for this reason that, while retaining the rationale of the psychophysical model, the present study attempts to relate the concepts widely used by landscape architects as predictors of scenic preferences. Some of these, such as 'space' and 'species diversity' are clearly physical; others, such as 'colour diversity' are quasi physical and one, 'genius loci' is

plainly aesthetic.

If the psychophysical approach has a shortcoming, it is its pragmatism, i.e. it does not tell us what mental processes have been set in train when a preference is expressed. In this research, we have supplemented the method with a social survey approach, where the use of the psychological model provides more detailed complementary evidence on the expectations, perceptions and feelings that comprise the forest experience.

At the conclusion of their 1983 review, Daniel and Vining, after dismissing as inadequate the expert models and the phenomenological model, conclude as follows:

"Whilst neither of the psychophysical and the psychological models are sufficient alone, the careful merger of these two approaches might well provide the basis for a reliable, valid and useful system of landscape quality assessment."

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3. The present research: overall strategy

This research divides into four complementary parts:

1. Four focus groups; in Dundee, Denholm, Southampton and Ipswich.
2. Two expert seminars; one in Scotland and one in England.
3. A household survey with a sample size of 799 divided between the north-east England, south-east England, Scotland and Wales.
4. A landscape preference study using colour photographs carried out in Forestry Commission visitor centres, with a sample of 1542 individuals.

It will be recognised that this is a funnel approach, from broad to narrow and from qualitative to quantitative. It is intended to disarm a criticism sometimes levelled at systematic survey research which would claim

that in aiming for large and representative samples, there is a risk of imposing preordained issues, structured into question forms that reflect the researcher's preconceptions.

This can be guarded against in three ways. First, by the use of intensive household interviews as distinct from brief street interviews - a distinction not always appreciated by critics; secondly, by including open-ended questions, the answers to which are not coded until after the event; and thirdly by carrying out thorough informal enquiries as a basis for the quantified approach. Both the focus groups and the expert seminars were designed for this purpose.

We have already said that a similar criticism can be levelled at the statistical analysis of landscape perceptions. Hence much of the less tangible evidence about people's feelings when in the countryside is elicited during the interviews. In addition, the household survey includes a landscape preference task based on twenty of the distant landscape photographs, for comparison with the results of the visitor centre study.

The focus group study

(contributed by Mary Hickman)

4. Introduction

The purpose of the focus group discussions was to provide input to the design of the household survey questionnaire. The discussions centred around respondents' knowledge and use of local countryside leisure facilities and their opinions on how they would wish to see them improved. Personal feelings and mythologies about the countryside and forests and the attributes that evoke them were explored. The more practical side of countryside visits such as access, who accompanies them and how this affects the choice of destination, and why and when they choose to go into the countryside rather than other possible destinations were discussed. Their views on alternative agricultural land uses were explored as well as issues about industry versus leisure in uses for the countryside.

5. Methodology

The aim of the focus group discussions is addressed below and was used to aid the design of the household survey questionnaire. The intention was to elicit participants' attitudes towards the issues discussed above in an informal setting that encouraged the interchange of thought and ideas.

5.1 The sample groups

With the help of the sponsors, four sites were selected for the focus groups, two in England and two in Scotland. It was, of course, recognised that such a small number of groups could in no way be seen as representative. However, the contrasts both in location and local amenities of the four sites chosen, Dundee, Denholm, Ipswich and Southampton, were expected to provide a broad base of viewpoints that would contribute to the development of the questionnaire.

The participants were recruited by RSL (Research Services Limited) through an established network of local 'facilitators'. These persons issue invitations, provide a meeting place in their own homes and serve refreshments. About half of those taking part

had experience of one or two previous meetings. All the participants were women. This was perhaps less than ideal, but it occurred by default, because RSL normally recruit for marketing issues that mainly affect housewives. It had some advantage in that women are usually more concerned than men about family recreational choices and their underlying reasons.

The first meeting was in Dundee and some of those present had young children whilst others had families that had grown up. They came from different parts of the city and, because the meeting was held in the afternoon, it is reasonable to assume that they either worked from home, part-time or not at all.

The group at Denholm met the following morning. Denholm is a village in the borders, between Jedburgh and Hawick, and the group was the only one in which the members live in a country village rather than in a town or city. The members were of a younger age group than those at the other meetings and all had small children in their families, some being cared for during the discussions in a creche run by the meeting's hostess. They found it slightly difficult to talk about local facilities at first because, as one said, 'Of course we don't actually see our countryside as beautiful because we're quite used to it'. They took it very much for granted and seldom stopped to think about how others might see it.

The third group discussion was held a week later in the early evening in Ipswich. Most of those present seemed to have come straight from work. Some still had families at home whilst others either had no children or no longer had to include them in any leisure excursions. It was in the Ipswich group that it was most difficult to encourage a full interchange. It was the only meeting where an observer was present and it is possible that her presence made it more difficult for the group to relax. It was also the only meeting where no formal introductions were made and this could also have contributed to the slightly more laboured discussions. However, once the ball was rolling it was possible to get the group talking about the various issues.

The Southampton meeting was held a week later on a weekday morning and none of the group appeared to have paid employment outside the home. This meeting lasted the longest of the four, although they all ran for at least an hour. It had the widest range of ages and thus, perhaps experiences; some members had young families whilst others were grandmothers.

5.2 Format of discussions

Each group consisted of about eight people. All the interviews were recorded on audio tape and these were later transcribed by myself verbatim. Field notes were also made immediately after the sessions. These consisted of impressions and reactions about each group that I observed as well as any aspects of the environment that impressed me at the time. People sat informally in easy chairs around the coffee table which held the tape recorder. People sometimes spoke to the whole group but more often addressed their discussion to me.

As well as straightforward questions, which of course led to a large proportion of the discussion, several other techniques were used. For example a brainstorming technique was used in which each member of the group was asked to write down suggestions on how they would improve local amenities. These suggestions led to discussions on a number of related issues and proved very informative. Another technique used was sentence completion. This came at the end of the meeting, when people were relaxed and able to express their feelings more easily.

5.3 Points about focus group interviewing

One or two comments about this type of research should be made. Topics cannot be followed in a specific order, as in a questionnaire, but must be incorporated in the conversation at a logical point. Some of the topics we wished to cover were brought up by the respondents themselves and therefore needed no introduction from me. Others were brought into the conversation but drew little response from members of the group. However in some cases the points were taken up later, when perhaps there had been time for more thought.

It is important for the person running the group to remain in control the whole time, otherwise discussion can split up into small groups and

become of little use to the research. The opposite problem is that the interviewer can step in too quickly, often during a short pause, and by bringing in the next topic perhaps misses some further deliberations on the previous topic. Both of these problems are easy to recognise in hindsight, when the audio tape is being analysed, but more difficult to control at the interview. However every effort was made to keep the discussion useful and focused. All those involved seemed to enjoy the experience of taking part in the group discussion.

In this type of research the respondents must be allowed to develop the themes at their own pace and as they come up logically in the discussion, otherwise the flexibility of ideas that focus group interviewing allows will be lost. It is the job of the interviewer to ensure that all the issues she wishes to obtain information about are included at some stage of the meeting.

5.4 Analysis of the data

A full transcription was made of each discussion. The transcripts were read with a view to determining how people felt about the various issues which had been discussed. The similarities and differences in the responses to the various issues, not only within groups but also between groups, were studied and will be discussed in detail below.

It is never possible to include the views of everyone involved about everything discussed; that was not the purpose of the group meetings. This report contains the main themes discussed, the feelings of the group about these issues and other interesting topics that emerged from the meetings.

5.5 Presentation of the report

The report begins, as the group discussions did, with a section about where people went for a day out, who they went with and why they chose that particular sort of outing (Section 6). This section separates each site because of the very different areas in which the interviews took place but is the only section that does so. The topics that led on from there are, of course, not mutually exclusive but the report is set out in the following way. Respondents were asked to list any improvements they would like to see in the facilities at these places they visit and these are discussed in Section 7. Information and education were popular suggestions for

improvements in facilities and these are dealt with in Section 8. The question of access to the countryside was raised at all the groups and the implications of this are outlined in Section 9 (pages 19-20). One of the areas we were interested in was preferences in types of woodland and the mythology attached to forests, and this forms the basis for Section 10. Country parks had a mixed reception among the groups and these are discussed in Section 11, which is followed by Section 12 which deals with the issue of afforestation. Although everyone had heard of the Forestry Commission and to a lesser extent the Countryside Commission, few people really knew much about them and it was felt that the ideas from the group about the sponsors was worthy of some discussion, and this is dealt with in Section 13. No generalisable findings can be expected from this type of preliminary research but the issues raised by these groups and their usefulness for designing materials for the next stage of the research are drawn together in the discussion section, Section 14, that concludes this report.

6. Where people go and why

Local visits are of necessity exclusive to each site, but the reasons for these outings are not. This section, therefore, will begin with a part about the local outings discussed by each of the groups; where they go, why they go to those particular places, who accompanies them and how this affects the destination, and when they choose a certain type of visit. The report will then draw on these reasons to outline the more general conclusions.

6.1 The Dundee group

The first local forest discussed was Tentsmuir which is used for 'trekking through, not ponies but walking through and picnics and families go there too'. This forest was seen to have one great advantage over many others

"Once you get through the forest you actually come to this lovely beach. I don't think there'll be many forests that have a beach on the other side of them."

As the forest was a nature reserve and a bird sanctuary it was felt that it was unlikely to change. Its use as a practice ground for low-flying aircraft was also mentioned.

Several people commented on the number of parks and country parks in or near the city and one summed up the facilities

"I think we're quite lucky in this area. You have the forest and sometimes the seaside or the countryside, loch or waterfalls. Or just a nice route you can wander up because it's got lots of rivers in that area. You don't have to, when you go out, you don't have to specifically aim for a forest. If you want to choose one on the way, there are plenty. We're very lucky."

She felt that people had the advantages of both the city and the countryside in Dundee, in fact 'everything'.

The group seemed to split between those who walked in the local countryside and forests and those who were more likely to simply drive through it. As one said, 'I mean we go in the car often, but we don't *often* go to the forest'. And another agreed

"I know, I'm like you, I wouldn't dream of getting out to go to the forest but I was just thinking, you saying that, but I would say that a forest makes a different sort of outing and particularly when you have children it's a good place for stopping and letting them out and run, have a bit of freedom. But I think once you're away from children then you're not really sort of stopping the car to go into that area."

This person's view did not completely reflect the activities of the whole group because although several had children and often took them to the local countryside and forests, others without children also made regular use of these facilities. One person in particular talked about forests on the other side of Dundee, off the Coupar-Angus road, and described the various routes she followed. She went there not to entertain any children but simply to enjoy the 'peace and quiet'. Another added

"And you can always hear the birds, it's nice when you've been in the city all the summer, to hear the birds."

The peaceful and uncongested advantages of the Scottish countryside were highlighted by a comment on my links with Surrey

"My daughter lives in Surrey and I'm just back from there. Two and a half million guys want to go the same road as you around Chartwell or Sevenoaks and that, the car parks are jammed and when you get out of the car it's a crowd, you really can't wander."

As has been discussed above, some of the group use the surrounding facilities for entertaining children, 'We mostly go because of the children', whilst others simply go to get away from life in the city for a little while and feel part of a different environment.

The type of weather also determined the destination of a day out. This point is also included in the question of when they visit the countryside. Many visited the countryside and forests at all times of the year, but one of the group explained

"Well, for me it's the summer. No, my daughter is allergic to the sun and we find if we take her there walking, she's sheltered from the sun there. We tend to hide her away, she can go out during the winter."

All agreed that a forest outing had the advantage of not needing a very hot day, such as would be needed to visit the seaside.

6.2 The Denholm group

Many of the people in this group did not think the local area provided anything much other than the local play parks and walks from the village. The person first to suggest anything other than these activities in the area was someone who had moved there fairly recently and who came from another part of Scotland. She talked of walks by a local waterfall, the Grey Mare's Tail, 'it's a sort of narrow waterfall, goes up, sort of four hundred feet', and later of a 'woodland centre the other side of Jedburgh'. It was an old stable block belonging to one of the local estates that had been

"... made into a sort of nature centre. It sells plants and they have, I think it's five, nature trails and you collect your leaflet that gives you directions and tells you what the trail is about and what you're going to see. And you go round and come back, stagger in and have coffee. These sort of centres I think would be ideal. Yes, I did the Wellington Walk. I thought it was because you had to wear wellingtons to do it, I didn't realise you were going to the Wellington Memorial. I didn't realise you'd got to walk up a mountain and back."

Another member of the group was less enthusiastic about the centre because

"I think we went to see a dovecote which impressed my sons *no end*".

The feeling of the group was that outings were 'a bit different' from day to day activities and

"I mean if we're going out for a day's outing, obviously we would try and go somewhere that's a bit different so we tend to go to the seaside, because that's completely different from what we're surrounded by. Every day our children are running in fields, forests at the top of the hill there and we're absolutely surrounded by it, every day we see wildlife."

This idea, that an outing had to be something 'different', was developed further and was also why the group felt that people wanted to come into their countryside.

"I mean, if we're having a day's outing, let's go out for the day, it's either a picnic or it's the seaside, or the zoo or Carlisle castle. You do something completely different. Just like all you folks from the town come whoosh into the country, let's experience the sheep and cows and go walking on the grass."

As has been discussed above, there was a strong feeling that a day out should be something 'different' and the excursion usually seemed to include a picnic and, if possible, something to entertain the children. However, several of the group were of the opinion that although there are picnic areas locally 'there aren't any activities for youngsters'. All they could do was 'run off in the fields and woods'. Another reference was made to the woodland centre where

"They have childrens' play areas made from wood so that it's not all bright colours and clashing which I think is smashing to have in a picnic area."

As well as an outing being 'different', there was a feeling that it should be 'structured'

"We also want it structured, just like when we go to the city we don't stop at the side of the street and have our lunch in the middle of George Street. We've got the idea, we're going to see the castle or we're going to do the shops or whatever."

As all members of the group had young families, these were usually seen as the main determinants of destination. One of the group mentioned a place where there was 'a sailing club, wind surfing' but the response 'not toddlers' evoked laughter from the rest of the

group, perhaps indicating the fact that it was unlikely that this group would be able to take advantage of the facilities offered there.

They seemed to visit the local countryside as often as time allowed. However, although some felt that the thirty-five mile drive to the coast was not a great distance, there were others in the group who felt that

“Many local people think forty miles is a terrible distance. I think the Borders are very bad for that really. They think over ten miles, I can’t go there, it’s over ten miles. Too far away.”

Other members of the group thought that this view was out of date. One member certainly did think that such a long journey with a baby could be frustrating and therefore not worthwhile because ‘it’s not the journey, it’s the problem of what to do during the journey.’

6.3 The Ipswich group

Many of the group seemed to go for outings to the local villages or the beach, and perhaps call in at the forest for a short walk on the way home. However, it was pointed out that many of the local forests had been destroyed in the gales of October 1987

“All the big woods and forests round here got it, absolutely devastated past Woodbridge and out that way.”

One of the group was very enthusiastic about a new place they had found at Thorndon, towards Diss, the previous weekend

“We went to this little place Sunday and they’ve got, I think it’s five different walks and they’re all very well sign-posted. And you start and they’re 50p each and nothing for the children. And they’re absolutely super. You can walk round. They start at three-quarters of a mile which would be a super walk for the disabled because the footpaths were cleared, and up to a six mile walk. You could do whichever one you wanted and it was ever so well sign-posted, and it was cleared and there were information boards. It even told you the birds you could see at different times. There was a blackboard before you start telling you which ones of the birds you could see now and the flowers you could see now. And it was super. There was nothing like that close.”

Several of the group seemed to feel that their area lacked interesting places to visit and one lady summed up this feeling by saying, ‘I think we’re always last to get anything’.

Several talked about walks they often went on in the local countryside. However, it was clear that some of the places they mentioned they had not been to themselves, but were listing them as places of interest for my benefit. This group seemed more inclined to want their outings to be ‘organised’ in as much as they felt they should have a specific destination and there should be a definite reason for the visit. One of the group, for example, described a typical day out for her family

“We often go to Alford, which is on the coast. The children like to crab-fish and there’s a lot of those. It’s nice on the beaches. We usually go there on a Sunday. And then we come back via Snape and look round the craft shops and the Maltings and come back through the forest.”

A commonly mentioned destination, that can also perhaps be seen as a reason, was a ‘good pub’, either at the start or the end of the outing. Another was a tea room.

“Tken Cliffs. You can park a car there and walk along to Snape or you walk around in a circle. You can have a cup of tea at Snape, it really is nice.”

Despite the number of references that were made to tea rooms and public houses, many of the group seemed to take picnics with them on their outings and to see them as a good reason for a day out. Several members seemed to be looking for somewhere for ‘a good walk’ that was ‘accessible by car’ and where the countryside was ‘unspoiled, natural’. Peace and quiet were frequently mentioned reasons for going into the local forests. Swimming was a popular pastime, and at least one member of the group mentioned the ability to exercise the dogs as a factor in her choice of outing.

Many of the group still had to consider children when they made their choice of outing and there was frequent reference to this, especially when there was any mention of cost. One of the group felt that a forest was an especially good destination when she was taking her children out because it was somewhere to

“Take the whole family. The (forest) is a lot of things, my children are spread out in

ages. I mean most visits teach you only one area whereas a forest, I think the whole family can enjoy it."

Some members of the group no longer had children to consider and were more inclined to talk about visiting local villages and country houses than walking through a forest or in the countryside.

As to the question of when these visits took place, most people seemed to go out almost every weekend. No specific time of year was mentioned although the weather certainly had a bearing on the destination.

"Yes, it depends on the weather as well, who you've got with you and what age. I mean whether you've got children and whether you're on your own, or if it's hot and sunny you go to a beach but if it's just a nice day then it's quite nice to go somewhere where it's, say a forest, or a place where you can walk. As long as it's dry underfoot."

Another also saw woodland as a good destination as

"You often get mists here on the coast. It's lovely here and you think I'll go there and you get there and it's clouded with mist. It's sunny here and you have to retreat to the woods where it's warm."

6.4 The Southampton group

All the members of this group seemed to go out into the local countryside regularly. The main destination seemed to be the New Forest, although a few did visit country parks in the area. One lady belonged to a local rambling club and made regular use of the local countryside and coastal footpaths.

The New Forest seemed to be a more popular destination than the local beaches, partly because these are 'not particularly nice, all stony and muddy' and also because many of them are privately owned. The New Forest was seen to be a good place to head for on a day out because

"When you get into a forest you get away from everything far more than at the seaside. At the seaside you have all the pressures of traffic and that, unfortunately, don't you?"

The variety of activities available in the New

Forest also made it a good choice for an outing. It was seen as somewhere to be visited over and over again, because the children still found it 'different and exciting'.

"The advantage of the New Forest is that because, as well, you can literally change the scenery. You could go there every day for a week and go to completely different parts . . . birds, animals and go to the deer. You could go to the snake pits and the streams and that. It's a wonderful forest."

Another advantage of a forest visit that this group often mentioned was the fact that 'its also a non-commercial treat because you're not bothered by ice-cream stands and that'. So, in contrast to other groups, particularly the one in Ipswich, the people at this meeting were looking for a family day out where they did not have to spend any money. Another contrast with other groups was the fact that no-one mentioned peace and quiet as a reason for their visit. This was explained by saying that

"You do have to work quite hard in the New Forest to actually find somewhere that's truly peaceful."

The majority of this group had young families and so they were normally included in any excursion. As has been discussed above, there are a variety of activities in the New Forest to amuse the children and this seemed to be an important consideration in any choice of outing. Many of the other local places, such as zoos and country parks, were avoided because they were felt to have become 'exploiting' and therefore not a good place to take children.

Although the New Forest was one of the closest places to visit, it was not necessarily a summertime outing. As one of the group explained

"And also, being so close, we don't have to use it in the middle of summer. I don't know about everybody else but it would never occur to us to go to the forest in July and August . . . we go in the depths of winter."

It was not so much the number of people within the forest that they felt made the outing impossible, but rather that the volume of traffic on the roads out of the city ruined the day out.

However, it was believed that the weather did not necessarily have to be good for such a day out and

"You don't have to have beautiful weather for the forest. It's nice to take the children out with a ball and a bat because there are wide open spaces in the forest. But you can also find places where there's a bit of water, go for a paddle."

6.5 Discussion on visits to the countryside and forests

Although any discussion about the destination of outings is, of course, site specific, there are one or two points that are worthy of note. Whilst all those who took part in the group discussions went regularly into the countryside and local forests and visited the same place over and over again, it seems that the group in Ipswich were looking for the type of 'organised' outing to the countryside that the group in Denholm expected people from the cities and towns to be looking for. Members of the group in Dundee seemed to want an informal outing, and in Southampton the group expressed their views strongly on this matter. It came over particularly forcefully when they were discussing local country parks

"You have to almost get a feeling of fighting past them before you can get to the forest, to the *real* places."

There was a preference for a combination of different types of scenery, with water often mentioned as pleasant, especially in conjunction with forests and woodland.

One of the main reasons for outings was as a form of relaxation, something different from day to day living. Some were looking for peace and quiet but those with children were more likely to be looking for a way to entertain them and give them a bit of freedom to run off their energy. The form this entertainment took varied from place to place, with those in Dundee and Southampton emphasising informal trips out, whilst those in Denholm and Ipswich seemed to feel that a day out had to be 'organised' in some way.

People seldom seemed to go out on their own. Those with young families obviously took them on any outings and those who no longer had families at home either went as part of a group or with their partner. This research was able to determine the views, not only of families who visit the countryside regularly but also of another of the main groups mentioned in the report *Policies for enjoying the countryside* (Countryside Commission, 1988), the frequent

middle class visitors who live nearby. There seemed to be no obvious distinction between the age groups in their choice of destination; any differences in the type of outing preferred seemed to be between the sites chosen for the interviews.

The types of visits discussed seemed to take place all the year round, with forests in particular mentioned as a good destination when the weather was not too settled. Those from Southampton seemed to avoid their local forest in the summer, not because of the crowds once they got there, but because of the traffic problems en route. Those in Ipswich did not seem to relish the idea of mud, which perhaps makes certain outings impossible in more inclement weather. Whilst those in Denholm could and did take advantage of their local countryside every day, the other groups obviously could make these outings less frequently. This need for planning, however, did not necessarily make people expect an 'organised' outing. Perhaps it could be said that the amenities available locally affect not only the outings taken but also the expectations of the facilities people come to enjoy.

6.6 The function of the countryside

There were diverse views expressed on the function of the countryside. This has been discussed briefly above with the concept of the 'organised' day out. The point was very clearly expressed by one of the Denholm group

"People in a town situation want to have a day in the countryside. They don't know if you go five miles along that road, take the second right up the hill, second left, you come to this gorgeous piece just by the river. They don't know that. What they want is to be able to go to the local tourist information and be told, if you go there, the woodland centre, there's five different walks, short one, long one, medium-sized ones. And, furthermore, you can take a wheelchair round there, because the paths are matted so you can get round. And they do see the countryside and I can appreciate that, if they're going to drive all the way to the countryside, they want a day organised in a certain way."

Perhaps it must also be said that the group here were not very keen on the idea of people from elsewhere just wandering about in 'their' countryside. As one said 'We don't want other people in the country do we?'

One member of the Ipswich meeting recognised that their visits to local beauty spots could be resented by the local residents

"I mean, if I lived in a quiet little bit I don't suppose I'd be encouraging people to come out to it. I'd send them all in the other direction."

And another member suggested 'no entry signs'.

However, the group at Southampton was clearly in favour of just being able to wander around in their local countryside and many of them strongly resented the idea of being 'organised'. They did not see this as a country visit at all, a view that will be discussed in more detail in Section 11.

7. Suggested improvements in facilities

Respondents listed their suggestions for the improved facilities they would like in their local area. These will be divided into a number of sections: general facilities, walks, and facilities for the disabled.

7.1 General facilities

Most people suggested that more car parks were needed within their local countryside or forests because, as one lady in Denholm said, 'some people have no consideration for other people' and will park in very dangerous places. However, the group in Denholm did not expect to pay for parking because 'you don't go into the countryside to pay 50p just to park in a field'. The Ipswich group also wanted free parking and highlighted a need for more parking in villages that has previously been documented by the Countryside Commission

"I think the parking, there should be more free parking because there are some people that live in these places that find all the people's cars on their grass verges or their flower beds, because a lot of them are village houses and sort of almost off the street. You've got a little bit of flower bed or verge. People park on them or half off them with cars. If there was free parking, people would use it, so it doesn't spoil things." (*Policies for enjoying the countryside*, Countryside Commission, 1988)

It would seem, therefore, that car parking was a facility that people did not expect to pay for in

the countryside.

Many of the Ipswich group included tea out as an important part of their day. Some felt that there should be more tea shops in the local villages and one cited the Lake District as an example

"I mean, you go to the Lake District, you walk down a mountain and into a cow shed and there's a lovely little bit that's been painted up and somebody serving buns and that."

Many people felt that more picnic areas with tables should be provided because, as one of the Ipswich group said

". . . because there's nothing else there, people take their picnics, don't they, if they go for the day."

However, they did not want these areas to become 'commercialised' because that would encourage too many people. One of the Dundee group felt that water fountains would be very useful in some areas because children get 'hot, or sometimes they're just wanting to splash their faces as well as have a drink'. Another of the Dundee group felt that the picnic areas and car parks should be restricted to one corner of the forest, that 'you want to keep these things compact and not too many', and that the rest of the forest should be kept as natural as possible.

More litter bins were suggested by some people, although others recognised the difficulties involved in this. The group in Ipswich saw litter bins as a potential danger to animals, whilst those in Southampton recognised that they must be emptied regularly if they were to be of any use. Some people, however, felt that, 'if you take the stuff out with you, why can't you take it home with you'. One of the Ipswich group highlighted the problem of 'commercialisation' in connection with a lack of bins

"I always find they're never where the ice-cream van is. I mean, the ice-cream van arrives and all the ice-cream papers are thrown about."

Many of those with young children suggested that more children's play areas near the car parks or beauty spots would be useful, as long as they blended in with the surroundings.

Several people, especially those with young children, wanted special areas to exercise dogs,

or at least some control over where they could and could not go. Some stated their case very strongly and one of the Denholm group said

"I think it should be stated down, walks should not allow dogs on it, they foul up everywhere."

7.2 Walks

Nature trails and designated walks were almost universally popular with our respondents and they felt there should be more. Even those who did not like the idea of the 'organised' visit still saw these walks as good. Most people liked notice boards at the start of the trails, because these helped them identify the various flora and fauna that they saw on the walk. Leaflets of 'ideas of things to look for', however, were felt to be better than notice boards because they could be taken away, studied and then used again on subsequent visits. Several felt that it would be useful to have a forest ranger on hand to answer any questions.

An information kiosk was a popular idea 'where somebody's there to tell you something apart from trying to sell you things'. These kiosks could also sell the information leaflets people wanted. It would appear that many people associated visitor centres with places which sold souvenirs rather than provided information. The local study centre on the common in Southampton was cited as an example of somewhere that had become too commercialised

"If you go out with children and there are ice-cream vans or places that sell souvenirs or toys or whatever, they don't enjoy themselves because they're thinking about what they're going to get out of it."

People felt they were unable to visit these places any more because of the pressure on them to spend money, in their view often unnecessarily. One of the Dundee group summed up this feeling

"These visitors centres and shops become very, very commercialised and people come to have their coffee and the souvenirs instead of having a walk in the forest."

These respondents felt that the main purpose of a forest visit was often overlooked, but did not take into account the fact that perhaps many people went to visit the centre rather than walk in the forest. However, a small lecture centre, such as the one at Dundee botanical gardens,

was felt to be a good idea

". . . where you take up to about twenty people and explain to them what you're trying to do and why it's necessary."

As well as notice boards which told you what to look for and, in many cases, the direction of the walk, someone felt that direction 'markers, so you know exactly where you are' in relation to local hills and well-known places, would be extremely useful.

Whilst all present recognised the necessity of paths so that 'you can't get lost', the types of paths people wanted on their walks varied enormously. Those prepared to walk for quite long distances were happy as long as the paths were passable and saw these paths as a way to disperse people around the forest. Many felt that paths should be natural, or perhaps covered in wood chippings. One of the Dundee group said

"I notice, though, they're putting down paths of wood chippings. That's saving paths, I mean, you're not wearing out the ground. It stays dry, it's quiet for walking on, it's natural for a forest area. If you get gravel paths, getting (gravel) splayed out it spoils the site."

However, some people in Ipswich seemed to like the idea of gravel paths because they did not seem to like the idea of muddy walks. As one said

"I mean, I've taken the children and we've been ploughing through paths where it's been muddy and you want boots and everything else. But no, the ones that are really cleared and you put a bit of shingle down where it's been wet and that, it's lovely. It's a pleasure to walk round there now."

This difference in ideas about types of paths seems to be another feature of the 'organised' visit discussion. Those who like their visits to be 'organised' also want the paths to be clear and easy to walk on. For this facility, some feel that 'people would pay a small fee to go there'. Those who wanted the countryside to be kept as natural as possible scorned the idea of paths where 'you don't have to change into dirty shoes, you can go in your high-heeled sandals'.

7.3 Facilities for the disabled

This topic follows very naturally from the discussion about footpaths above. As one

respondent in Southampton commented

“There are two different sorts of walks, aren’t there? To make it accessible as you said for disabled people and small children and old people is one thing, but then there’s the sort of rambling type of walk for the more able-bodied.”

All the respondents seemed to be in favour of more facilities for the disabled in the countryside. Well-cleared and matted paths were suggested, but as one of the Denholm group added

“It’s all right saying there’s plenty of scope but a stile to get through, they can’t always if you’re pushing a wheelchair.”

Many people recognised that more facilities were being made available but felt that there was still a long way to go in this area.

8. Information and education

Whilst some discussion about the usefulness of leaflets and notice boards has been made above, this section will deal in more detail with the whole issue of education; who it should address and why, where information can be found, and the conflicts between knowledge and an end to peace and quiet.

8.1 Who needs educating?

Those who attended the groups accepted that they needed the benefit of leaflets and notice boards to supplement their knowledge about, as one of the Southampton group said

“Things that are in the habitat, that you can look for and find . . . so that you know next time what it is you’re seeing.”

However, they all seemed to feel that they knew how to respect the places they were visiting, a confidence that they did not share about others. People in both Denholm and Southampton felt that the ‘country code’ should be more generally known, and in fact one of the Denholm group did not know that such a leaflet existed and said

“I think we need more education as far as countryside is concerned. So I thought it might be a rather good idea if we had a country code for those not familiar with, if you like, the unspoken or sometimes spoken rules and regulations of the

countryside. I’m talking about people who come with their dogs, unaware that if this dog chases sheep and worries them the farmer is completely within his rights to shoot the dog on sight. Closing of gates, um, knowing a new crop when they see one. I mean it’s not just awfully nice green grass that they can sit on or walk straight across.”

The country people did however feel that, in the same way, they might need education about how to behave in towns and cities.

8.2 How do we educate?

The group in Ipswich were very negative about the whole issue of the education of others and seemed to agree with the lady who said, ‘I don’t think you’ll ever get through to some people at all’. As an example of this they cited several cases of local people of all ages who just dumped their litter in the streets. As one said

“I don’t think you get through to those sort of people with education at all, I mean you’re just wasting your time”.

One of the Southampton group was particularly concerned about litter and also seemed to see little hope of improvement by education.

Many felt that education with a view to giving people an appreciation of the countryside should start at school or even before. However, others felt that in many ways the main offenders, certainly with regard to litter, were the young, that is those most recently exposed to the education system. One of the Denholm group suggested that schools should get involved in projects to improve the local countryside and that grants should be made available for this purpose.

Television was seen as an important education medium, although some people felt that unless the message was personalised, it could not hope to reach the majority of people. As one of the Southampton group said

“But if you can bring it to the individual and the part they can play, then I think that’s the other way round of getting their interest, because they can feel responsible.”

However, it was felt that many of the programmes that deal with these issues only appeal to an already interested audience and that they do not reach those who the respondents felt need the message most. One of

the Southampton group summed this feeling up

“There are still an awful lot of people who just aren’t interested in it. No matter how many programmes you’ve got on the television, they won’t watch them.”

Another of the Southampton group felt that the younger people were much more aware of conservation issues than was her age group. She felt that perhaps this was because they had grown up with the fairly recent and extensive media coverage of various world problems, which, because of the time scales involved, she felt had a greater impact on the young.

The recycling of waste was felt by one of the Southampton group to be a ‘good educational tool’ because people in general, but especially children, could learn from this about the conservation of our natural resources. A final suggestion was education by example, that is if people see others taking a pride in their surroundings and picking up litter they would be less likely to drop more. This suggestion received a mixed reception from other group members.

8.3 Where do we go for information?

I asked each group where I, as a stranger to the area, could go for information about the leisure facilities available locally. All cited the local tourist information office as a good place to start, although the group in Ipswich were less enthusiastic about theirs than the other groups. Local newspapers were also felt to be a good guide to the activities available in the area. The Denholm group member keen on producing a country code leaflet felt that this type of information should be much more widely available and concluded her discussion about the leaflet by saying

“But make this leaflet really available, in supermarkets, you know with the *Family Circle* and all this lot you see at the cash desk. Tourist information obviously, all sorts of shops. Just have this country code in a little leaflet.”

She also felt that a way to get people to notice the booklet was to write ‘rules and regulations’ in large letters, because she believed this would make people stop and think.

As has been discussed in detail above, all the groups were keen to have information centres

within the forest, as well as notice boards on the nature trails themselves, but few relished the idea of a ‘commercialised’ centre.

8.4 Conflicts between information and tranquillity

One of the main reasons cited for a visit to the forest was ‘peace and quiet’. The only group that did not mention this as a reason to visit the forest was that at Southampton. When questioned on this point they said that it took a lot of hard work to find tranquillity in the New Forest, because of its popularity. This highlights one of the problems of providing more information. Those who already know of quiet places in the forest do not like the idea of too many other people finding out about them. As one of the Dundee group said after she had described a favourite walk, ‘. . . but I don’t publicise that ‘cos it’s always nice and quiet there’.

On the positive side it was felt that the very nature of a forest meant that it could absorb a lot of people before it seemed crowded and that providing a number of nature trails was a good way to disperse the crowds. The people of Denholm did not relish the idea of people from outside the village picnicking on their village green. All who visited local countryside and forests did so with the idea of ‘getting away from it all’. Thus the whole issue of more information is full of contradictions. Those who know and visit places regularly only want information available so that they can enhance their enjoyment. They do not want too many people to find out about these places and destroy their appeal.

9. Access to the countryside

All the discussion about visits to countryside and forests in this report so far has made no mention of access. It has been assumed. However, it is interesting that when I asked the group in Dundee where information about local places was available, the answer I got was

“You know lots of families who don’t have cars, how do they get there? I mean I’m not suggesting they run bus trips out there but there should be some form of transportation ‘cos everybody doesn’t have a car.”

The issue of access involves not only how to get there and where to park but also the effects of this traffic on the local road networks.

9.1 How to get there

Most felt that people without cars should be able to visit the countryside but were not sure how this could be done because public transport costs would be prohibitive for many families. The group in Southampton said that the New Forest was well serviced by the local train network, which was seen as the most convenient way of reaching it during the summer months. However it was pointed out that it is no longer possible to take bicycles on these trains, and that this reduced accessibility to the more remote parts of the forest.

One of the Dundee group suggested that during Dundee fortnight

“They could arrange coach trips so that people who want to go to the forest can go on a particular day and be dropped and then picked up.”

However, another member of the group did not relish the idea of large numbers of people being dropped in the forest and left to wander around. As she said, ‘No coach. I mean half a dozen coaches with fifty-six people on a coach . . .’ She felt that this would also destroy the tranquillity of the experience.

9.2 Local roads

One of the Southampton group highlighted the problems of access when discussing the situation as it was in the New Forest a few years ago, ‘. . . there weren’t so many cars around’, and she felt that the car had ‘opened it up to the general public’. One member of the group in Denholm associated any improvement in local facilities with the need for a better local road system, with some roads having to be ‘widened and straightened’. She felt that the local main roads were ‘appalling’ but that any improvements would make the area much more accessible and, like the Lake District, ‘chock-a-block with cars’. All members of the Southampton group felt that the New Forest was inaccessible by car in the summer because of its popularity and the consequent congestion on the local roads.

Thus, access was not seen so much as access within the forest, which most people seemed to think of as reasonable, but rather as the wider issue of local road networks and the inability of those without their own transport to visit the countryside. The Ipswich group felt that, ‘if you haven’t got a car I think you’re a bit stuck’ but

went on to highlight the other side of the access issue again. As one of the group said, ‘Trouble is getting a bus. If you had a load of buses going out there that would destroy the peace probably.’ She went on to voice an often repeated feeling

“The trouble with all these nice areas, you like them but you don’t want too many other people to find them.”

It would seem, therefore, that whilst most people recognise the rather ‘elitist’ nature of countryside visits, in that they are often only available to those with their own transport, few people seriously wanted access to be improved because it would detract from the pleasure of their own visit to have too many other people around.

10. Attitudes to forests

One of the issues we were interested in was how people saw their ideal forest. This, of course, raises the whole question of what they saw as a forest, the types of trees they preferred, how much they saw forestry as an industry, their past experiences of woods and forests, and issues connected with wildlife.

10.1 What is a forest?

One of the greatest advantages of a forest was seen to be its size and the opportunities it offered to get away from other people. As one of the Dundee group said

“A forest is a sort of private thing, the solitude and the mystery of it. And that is, I think, what most people are looking for, that go for walks in the forest, unless they’re aiming for a particular picnic area in the centre of it, or side of it, or whatever. But I think forests couldn’t be enjoyed like swimming or ice-skating.”

But what is a forest? One of the Southampton group put this question succinctly when she said

“I mean, are you talking about forests or are you talking about woods? Forests you can grow overnight virtually you know, with a few well-chosen quick-growing trees, but a wood takes longer.”

This was an interesting viewpoint in an area

where the nearest forest has been there for hundreds of years. It seemed that all the groups associated the word forest with 'pine forests', which grow quickly and are regularly felled. A lifetime visitor to the forests around Dundee highlighted this association

"I'm a Dundonian and have lived here all my life. I have seen on the left-hand side of the Coupar-Angus road, which is a part of the north road going out, five or six times a forest planted and I've gathered flowers there, wild flowers when we used to have competitions at school, junior school, for flowers and wild things. And then its grown and they've chopped it down. I say five or six times I have seen that particular forest."

It was recognised that there were areas of the countryside where conifer forests would be welcome, but they were largely in sparsely inhabited areas. As one of the Denholm group said

"I mean, there are obviously large areas. I mean, if you go out towards Newcastleton way you have rolling hills and its really quite bleak, very little human habitation, only sheep. Well, some of these areas are obviously crying out for forestry."

10.2 Broadleaved versus conifer forests

When it came to more local areas, however, people expressed a strong preference for broadleaved, more 'natural' woodlands that were 'not planted in straight lines'. The ideal forest was seen by all groups to consist of a mixture of trees. One of the Denholm group summed up the comments of other members when she said

"I think that in this area it's time that they started planting oaks, proper broadleaved trees rather than pines."

Conifer forests were associated, especially in Scotland; with 'hillsides really closed in by forests' which were seen to be perhaps a little frightening as well as restricting. One of the Dundee group described these forests

"Well, some of the Forestry Commission they are very very close together and then you'll get a wide gap. So you have to go on this particular fire break and you can't walk in between because the branches are so low that you do yourself an injury. And I much

prefer a forest where you can just wander and you can make your own way."

This freedom of movement seemed to be associated mainly with broadleaved forests but more especially with woods, because, as one of the Ipswich group said

"I want a forest like what you tend to call a wood [because] a wood is sort of a natural thing really, whereas a forest really is just planted."

10.3 Time factors

The whole issue of broadleaved versus conifer forest is further complicated by the time factors involved. When people spoke of broadleaved woods they were talking about the more natural areas they remembered as always being there. They went to these woods in their childhood to 'picnic, and when the chestnuts were about we used to chestnut and that all day'. Some mourned the loss of many of these trees as houses encroached further into the countryside. The old sort of woods were seen as 'the sort of thing that nature will grow, seeds fall and they grow anywhere and everywhere'.

When it came to conifer trees, however, these were seen as fast growing and of more recent planting. They are not seen as a leisure amenity but rather as a source of profit for their owners.

10.4 Forestry as an industry

The whole issue of forestry as an industry is an interesting one, although some people had obviously not thought about it much. Whilst many people accepted that growing forests for profit was a necessity, few liked the idea of the close-growing, one-species forests associated with the forestry industry growing near their homes. They felt that these should be reserved for the wild and desolate areas, especially in Scotland, that were seen as suitable for little else. However, all the groups recognised that the forestry industry went on around them and that even parts of the New Forest were grown for profit. The Ipswich group felt that forestry was a better industry to have in their area than many others because the land was still attractive and accessible to them most of the time for leisure activities

"If we've got to have industry round here I'd rather see that sort of industry than sort of built up works and dirty industry and

that. I mean, it's quite a pleasant sort of industry, isn't it? I mean, they replace them, it's done in a rota so they're all replaced, aren't they? As you say, I don't walk round and sort of think about it as an industry."

Some in Ipswich saw the industry as a positive benefit to the area because at Ipswich docks there were large amounts of timber.

"They're not coming in but they're actually going out, timbers that must have been cut somewhere local, mustn't they? It's amazing."

10.5 Mythology of forests

As well as associating forests with leisure and industry, many people remembered how they felt about these areas in their childhood. It would seem that those from the country, and those who were regular visitors there in their childhood, had a stronger association with forests. One of the Dundee group remembered being convinced that 'the three bears lived at the one at Haliburton' and that she used to say, 'Do you think they're having their porridge just now?' She was convinced that, if she could get in far enough, she 'might see what was happening'. Others mentioned Bambi, and Charles I hiding in an oak tree. There was the feeling of mystery; 'you just want to go one step more to see what's going on'. One of the Southampton group felt 'nearer to God' in the forest, whilst several others thought of trees with awe. It seemed to be their age and the concept of continuity that created this feeling.

10.6 Wildlife

Wildlife was seen as an important part of forest life and one of the Southampton group saw the need for more fences for animal protection as the most important consideration in any forest scheme. Again, the issue of broadleaved versus conifer forest came up. It was believed that broadleaved woodlands were home to a greater variety of wildlife. One of the Southampton group said she had heard that red squirrels preferred conifers and this she felt was a plus point for the growth of more conifers.

The Ipswich group talked of the deer that lived in the pine forests around them and this animal's premonition about the October 1987 gale was discussed. 'Apparently, the night of the storm, in the evening all the deer were out in the middle of the road, before it happened.' Some people liked to go into forests and woods

to hear the birds sing. As one of the Dundee group said

"And you can always hear the birds. It's nice, when you've been in the city all the summer, to hear the birds."

11. Country parks

The views on these relatively new features of the countryside varied widely. Some felt that they were a positive benefit whilst others saw them as obstacles that got in the way of a visit to the real countryside.

11.1 The perceived benefits

As has been discussed earlier, the group in Denholm felt that people were looking for an 'organised' day out in the countryside. Thus they saw a country park as a positive advantage, somewhere where people from the towns and cities could go for a pleasant day out without destroying the tranquillity of the countryside. People were contained within set boundaries. One group member seemed to voice the feelings of the whole group when she said

"People in a town situation want to have a day in the countryside. They don't know if you go five miles along that road, take the second right up the hill, second left, you come to this gorgeous piece just by the river. They don't know that. What they want is to be able to go to the local tourist information and be told. If you go there, the Woodland Centre, there's five different walks, short one, long one, medium sized ones. And, furthermore, you can take a wheelchair round them, because the paths are matted so you can get round. And they do see the countryside and I can appreciate that if they're going to drive all the way to the countryside they want a day organised in a certain way."

Thus the people were entertained without encroaching on the places that the local people treasured. At the same time, these centres were seen as a way of providing local employment without developing the countryside. They were seen as a way to help the 'small craft industries', and this was felt to be something that should be encouraged.

11.2 The perceived disadvantages

Whilst some of the Ipswich group visited places

that to all intents and purposes provided the sort of facilities expected in a country park, they obviously saw them as a 'different thing' and one said, 'I don't think you'd attract the samesort of people if you built a country park'. They seemed to view country parks in a rather negative way.

However, it was many of the Southampton group who came out most strongly against these parks. They did not see them as a 'natural use of the environment' and felt that they were 'encroaching' on the local countryside. One of the group felt that these parks encouraged people to let things 'happen around them rather than actually to, actually to go and do them themselves'. She felt that Southampton was surrounded by country parks and 'It troubles me that that's what people's idea of what countryside is'. This group were strongly against any commercialisation of the countryside and many felt that country parks 'exploited' not only them but also their children. They were very keen that the countryside should remain as natural and unspoiled as possible and seemed to regard any change in a rather negative light. As one group member said when asked about improvements to the forest, 'leave well alone'.

12. More forests?

The alternative uses available for the land that must be taken out of intensive agriculture over the next forty years were discussed with each group, with particular attention given to the idea of more afforestation and urban forests. Other suggestions on this topic made by the groups is also included.

12.1 Afforestation

People seemed to associate afforestation with large remote hillsides, usually in Scotland, that 'you can't grow anything else on'. As one of the Dundee group summed them up

"The thing is, you've got to differentiate between forest and forests, because we're talking about forests that are within a bus ride or out of the city but if you're going up to Glen Coe or something, you've got forests that just never . . . Nobody gets off to walk in them at all, and that's a hill-covered mountainous area. So when you talk of afforestation, that's often what they mean, changing the actual contours of the landscape or hill by the trees."

To most people, then, afforestation meant large expanses of single species conifer trees which 'while they are commercialised I suppose they won't have a mixture of trees'. It also seemed that afforestation would only be acceptable on poorer quality land because 'wouldn't obviously put it on good farming land' was a commonly held view.

The group in Denholm had mixed feelings about the Kielder Forest but believed that it served 'the need for the reservoir' because 'the hills that it covers were no good for anything but sheep'. It would seem that, in Denholm, Kielder Forest had become accepted but the group felt that 'to do the same over the whole country' would be wrong.

The group in Ipswich saw their local forest industry in a positive light and felt that trees were better than more houses, industrial estates or out of town shopping centres. However, they were of the view that

"I mean, at the moment all they're after is quick growing forests, aren't they, but it's not really what we need in this country."

They expressed the view that in this country 'we need more slow growing trees', which they saw as being of greater value than pine trees.

In Southampton it was realised that parts of the New Forest were grown for commercial reasons and this was accepted. Again, though they seemed to associate afforestation with remote Scottish hillsides, that is places that were too far away to affect them personally.

12.2 Urban forests

Most people felt that urban forests were a good idea and a way to give access to the people who would not otherwise be able to get to a forest. As one of the Dundee group said

"Well, if we want the forests to be for the people, for the public as this lady says, it isn't always easy for people who don't have cars to enjoy so we should bring the forests nearer to the towns if possible."

This group in particular were positive about the idea of a forest between Glasgow and Edinburgh.

The Ipswich group responded in a very negative way to the idea of an urban forest. They felt that they would 'be vandalised,

wouldn't they?' and 'that's all artificial'. They could not see that, to future generations, the forest would become as attractive as the mature forests are to them today and they felt that vandalism

"... only seems to be where you put two or three new trees, and you put a little bit of wire round to keep them growing nicely. And then, they're gone, I don't know why."

However, they did feel that they were very lucky in their area with the number of parks and woods around them and that perhaps they would feel differently if they 'lived in Manchester or somewhere like that'.

12.3 Other suggestions

One of the Denholm group felt that the 'set aside' areas

"Would be nice if they had copses in them. Plus, if you have a large area that's going to be planted, then I think it should be planted with areas which are broadleaved trees and areas which are pine trees, which they need to recoup their money. But I'm sure there can be a mix."

No other person mentioned 'set aside' areas and I got the feeling that this group member was much better informed about the issues being discussed than the majority of the others.

The group in Dundee felt that more emphasis should be put on variety in any planting of new woodlands and several mentioned the idea of paying to plant a tree. Sometimes advertisements appeared for this in the local newspaper but one person spoke of a scheme she had subscribed to in Surrey.

"You can plant a tree and have someone's name on it. So somebody, maybe has a birthday in the family. I have one for my grandson and my granddaughter down in Surrey, because when I wrote away about it you had just had the dreadful storm and they were planting. So Mark and Katrina have a sapling planted and their names, and they'll be able, when I'm gone in years to come, and it's a tree and they'll be able to say, that's my tree."

The bonus behind the scheme seemed to be the idea of leaving something for posterity, something living that others could remember you by.

13. Knowledge about the research sponsors

Everyone spoke about their local Forestry Commission forests but we felt it would be interesting to find out how much they really knew about the work the Commission did. With the Countryside Commission it was slightly different because the discussions did not mention them directly. However, we felt it would be of use to them to know how the public perceive the Commission and their work.

13.1 Forestry Commission

Everyone knew that the Forestry Commission controlled many of their local forests but they were less sure, as one of the Dundee group put it, 'What is the purpose, is it for commercial mainly or is it for us?' This point, the possible conflict in the public's mind between the commercial and the leisure aspects of the Commission, came over many times. Everyone praised the recreational facilities provided, and one of the Ipswich group praised the camp sites.

"We always take a caravan to the Forestry Commission sites. I mean, they're lovely, they're more natural . . . I don't think they charge enough. You know, if you caravan or anything, they wouldn't charge enough to be self-financing. I wouldn't have thought . . . no, but I mean, they've got toilets and showers, everything there is perfectly clean. There are cleaner sites there than anywhere else you go."

Another of the Southampton group praised the facilities provided in forests by saying

"The Forestry Commission have some very nice picnic areas, haven't they? They're very well kept. The toilets are beautiful all the way. I've never been to a Forestry Commission toilet that's bad. Yes and they do keep it in the environment, it's all rustic benches."

Most people recognised that the Commission also had an industrial role and some felt that, with Forestry Commission forests, the two had been combined very successfully because 'at least you can walk through them and look at the animals and goodness knows what else, can't you?' In fact, it seemed to be the group in Ipswich who most appreciated the industrial side of forestry and that the only time that the forest amenities would be closed to them was

when timber was being felled. They recognised that a well-planned forest was one where 'they're not cutting them all at the same time' and that they were normally 'planned right so you've got different ones with them, accessible at different times'.

The group in Denholm were not so complimentary about the Commission, believing that, 'The Forestry Commission lorries ruin our roads and take all the work and the money back into the south, leaving us with the road repair bills.' Perhaps their easy access to the local countryside meant that they were less reliant on the amenities enjoyed by many of the others involved in our group discussions. However, they had noticed that '... the Forestry Commission are cutting trees back from the roadside to give people a view'.

Most people felt that the forests could be enjoyed by everyone, '... a forest for me would be for everyone'. However, they felt that, '... you have your experts who take care of the trees and all the other things. But we should feel responsible for it in our behaviour.' The group in Southampton emphasised the responsibility they, as members of the public, had towards local amenities and felt that forest management should be a joint responsibility. However, they were also of the opinion that forests did not cost anything to run and that they already paid for any amenities, like the camp sites, that the Commission provided.

Several people felt that the Commission was rather secretive, '... it's a faceless body, really' and one of the Dundee group wondered why she had seen notices saying 'Forestry Commission - Keep Out'. The groups realised that they had a lack of knowledge and it came as a surprise to many of them that they were 'not quite sure who is responsible for what', perhaps because they took the Commission for granted. One of the Southampton group felt that

"Perhaps this is an indication that we should know and that they shouldn't have such a low profile. That we should be aware of them as people who are working for the good of us really, instead of just laying down rather tedious regulations."

Many people wanted a partnership between the public and the Commission over the management of forests. They recognised that forests needed to be taken care of to keep them growing but felt that they should have more say in future planting because

"We're the ones that are living with it. I think that we, I think it should come down heavily on our side if anything."

13.2 Countryside Commission

Whilst most people were unsure about the nature of the work undertaken by the Forestry Commission they knew something about it because the Commission's existence had been established by the well-remembered sign boards at the edge of forests. The Countryside Commission, however, does not have this advantage and this means that, whilst most people have heard of them, they do not connect them with any particular aspect of the countryside.

When people were asked to think about who the Countryside Commission were they were very vague. The response in Denholm was typical and highlights the lack of information people have. One person asked 'I mean what do the Countryside Commission do?' and no-one was sure how they could be found if needed. The confusion can be further indicated when I say that one said, 'I thought they had something to do with the tourist information office', and another asked, 'Are they not self-supporting?', while a third said, 'I thought they were something voluntary', and a fourth asked, 'Are they very much into rare flora and fauna?' Most people seemed to feel that, as one person in Ipswich put it, 'its one of those things we take for granted really, isn't it?'

As the various discussions progressed, with talk of areas of outstanding natural beauty and the preservation of the landscape the confusion in Southampton became apparent. 'Well as far as the areas of natural beauty, they do quite a good job in fact, don't they, they look after them. Is that the National Trust?' Someone then remarked that the National Trust was a charity and that they also own a lot of the local coastline and the person above said 'So maybe it isn't the Countryside Commission that I'm thinking of'. People felt that there were 'so many different names for these various people' and that 'unless you've got to pinpoint, to think about it, you don't know, who is responsible for it'.

14. Discussion

The leisure sites each group visited were obviously site specific but many of the points that came out are generalisable across the groups. It seems that visits to the local countryside and

forests are normally undertaken with family or friends and rarely alone. Favourite places are revisited and outings take place throughout the year. The forest is seen as a good place to go when the weather is perhaps a little changeable, or in the case of the New Forest in any but the most popular summer months, when access becomes a problem. The group in Ipswich seemed to enjoy visiting their local villages, and to enjoy more 'commercial' visits than the other groups. They also liked the idea of the more 'organised' day out that the group in Denholm expected those from towns to be looking for. The Southampton group were against this sort of outing especially, not seeing it as a visit to the 'real' countryside.

People were asked to suggest any improvement in facilities they felt would be useful in their favourite places. More parking places and picnic tables were popular suggestions. Most did not like the idea of these areas becoming 'commercialised', although the Denholm group wanted more children's play areas. However, they thought these should blend in with the landscape. There were some who felt that more litter bins should be made available whilst others saw them as a danger to animals or even unnecessary. It was also recognised that to be effective bins have to be emptied regularly. Several people were keen that the exercise of dogs should be restricted to very specific areas within an amenity and that they should be kept out of other areas.

Nature trails were popular, together with leaflets and notice boards indicating the route and specific information on the walk. It was felt that it would be useful to have a map on a walk that placed that trail within the wider countryside. Someone to dispense information was seen as important. However people associated visitor centres with souvenirs and this did not seem to be what they wanted. They felt an information kiosk was sufficient and someone suggested that a small lecture centre would be useful. Most people felt that paths should simply be cleared, unless they were designed for use by the disabled when matting was felt to be a good surface. The group in Ipswich were keen on the idea of gravel paths, although most other people were happier with a more 'natural' surface. Those who suggested or enjoyed the 'organised' type of outing expected to pay for any facilities provided. However those looking for the 'real' countryside feel that this is free and see no reason to pay for parking or picnic areas. They did, however, expect to pay for the leaflets

connected with the nature trails.

The issue of education is an interesting one. All the people I spoke to believed that they knew how to respect the countryside but that many others did not. When it came to a discussion on the best way to provide this education there were many people who seemed to think that it was a lost cause. Television was one medium suggested. Most felt that any education needed to start with school children. Recycling of waste was seen as a way of bringing the issues down to a personal level, as was education by example.

Access was discussed, not as many professionals would see it, in terms of entry into the woods or forests themselves, but in terms of the ability of people without private transport to visit these areas. Most felt that public transport should be improved, although no-one wanted too many visitors at their special haunts because it would detract from the 'peace and quiet' of the visit. The New Forest was seen to be accessible by train, which was a more convenient way to get there in the summer when roads were congested. The group in Denholm felt that their local roads would need to be upgraded if more people began to visit the area and they were not keen on this, again because it would destroy the peace.

Forests were felt to be new and were associated with close, quick-growing conifer trees, which are boring to walk in but acceptable in remote areas where no-one goes and nothing else will grow. Woods were usually described as 'natural', old and established, with mainly broadleaved trees. These were seen to give freedom of access and the ability to wander. The forestry industry was accepted, especially in Ipswich where it was perceived to be preferable to more houses or factories. Trees inspire awe and a sense of mystery, a feeling of continuity and, in the case of conifer woods, a fear of getting lost. Forests were seen as an important sanctuary for wildlife which must be protected.

Beliefs about the purpose of country parks varied between the groups, that is between those who preferred the 'organised' and those who preferred the less formal day out. The group in Denholm saw these parks as a way to keep people within certain boundaries, rather than wandering around in their local haunts, and also as a way to preserve the small country craft industries. The Ipswich group enjoyed visits to these parks but the other groups, especially the Southampton one, felt they were 'exploiting' people and were obstacles in the

way of getting to the 'real' countryside.

Afforestation was acceptable, as has been said before, in the remote parts of the countryside, where nothing else will grow. Kielder Forest had been accepted by the local people but they did not wish to see more like it near them. Again the need for more broadleaved trees was expressed. Most felt that urban forests would serve a useful purpose and give more people the opportunity to experience the forest. However, the Ipswich group just believed that they would be vandalised. Schemes that give people the opportunity to plant a tree were suggested as a good way to provide trees in areas where they were needed.

Most people had heard of the Forestry Commission and were very positive about the type of amenities the Commission provided. They saw the forests as 'theirs' but understood that they needed husbandry by experts. However nobody was sure who the Commission were responsible to, where their finance came from or how much part they played in the forestry industry itself. Many confused the Countryside Commission with other groups such as the National Trust and were very vague about them.

Many of the themes discussed above will be

further developed in the questionnaire (see Part 4). What people see as the 'real' countryside, whether they expect to pay to use it and what sort of paths they expect to walk on are all part of the wider issue of the 'organised' as against the more casual day out. Whilst people want more information to enhance their own experience they are less keen on too many people knowing about where they go because this could ruin their 'peace and quiet'. They do not seem to like the idea of 'commercialised' places selling souvenirs in the countryside and most feel they should not have to pay for the visit unless a special facility is provided. People who visit the countryside feel they know how to behave but they are less sure about others and this 'elitist' attitude is reflected in their lack of faith in any educational tool they could suggest. The effect of childhood activities on attitudes to the countryside is clear, and this is reflected in their preference for established broadleaved forests rather than what they see as the newer and less interesting conifer forests. This view colours their ideas on afforestation, with only remote areas where nothing else will grow suggested as suitable for conifer forests. However the idea of urban forests was largely popular. It is interesting to see how these views compare with the much larger sample tested in the next stages of the study.

The expert seminars

15. Introduction

The expert seminars were built into the research schedule as a means of eliciting the views and standpoints of a number of key people with a special interest in the planning, design, management and use of forests and the countryside. The rationale behind them was that they would be a cost-effective way of brainstorming a number of issues, many of which had already emerged in the focus group interviews.

The initial intention was to hold a single expert seminar. However, it was decided that having two seminars, one in Edinburgh and one in London, would not only involve a larger number of people in the discussion, because of the alternative dates offered, but also give a choice of venues to minimise cost and travel. Groups were approached by the sponsors, told about the aims of the seminars and invited to send a representative. The attendees were selected to ensure that a wide range of public, private and voluntary sector organisations would be represented.

The seminars had two main aims. The first of these was to provide an information source that 'will help inform the future policy- and decision-making actions of the research sponsors'. The second was to assist in the design of the next stage of the research, the development of the questionnaire for the home-based interviews. The first seminar was held at the Forestry Commission offices in Edinburgh. Altogether fifteen people attended, including three representatives from sponsor organisations and four members of the research team. The London seminar was held at Imperial College, London with a total of eighteen participants, including those from the sponsor organisations and the research team (Appendices D and E on page 34 list attendees of the seminars and their affiliations.)

The way in which the two seminars were approached and structured differed quite significantly and, as a result, they were distinct in both the focus of conversation and the subject matter discussed. The Edinburgh seminar focused very much on the research

methodology and its perceived advantages and disadvantages, which, while giving the research team much food for thought, did not provide many topics for inclusion in the home-based interview questionnaires. The London seminar was approached in a different and more structured way. The discussion was led through a series of predetermined headings and more actively chaired so that it could be moved on to the next topic if necessary. It was interesting though that, in many instances, the discussions progressed very naturally from topic to topic. The main issues discussed in the course of the London seminar were:

1. Factors that inform public preferences and evaluation.
2. Whether people are concerned with how forests look, e.g. broadleaved versus conifer forests.
3. The economics of forestry - jobs, benefits of afforestation.
4. Ownership - who owns forests? - public versus private concerns.
5. Should there be more access? - paying for a better landscape?
6. The provision of facilities within the forest.
7. What is the carrying capacity of forests before activities and wildlife are adversely affected?
8. The role of education in increasing public understanding and appreciation of forest landscapes.
9. The role of participation and consultation in the design of future forest landscapes.

16. The Edinburgh Seminar

The research team opened the seminar by describing how the study at the Forestry Commission visitor centres was to operate. It was believed that the attendees needed an overview of the whole project if we were to make the best use of their expert knowledge. However, they seemed to latch on to this particular section of the research and from the beginning the discussions centred largely around the participants' views on the validity of our methods and their suggestions for possible refinements.

One of the main concerns voiced by the group was the whole question of whether visual cues are enough. It was felt by some that they may not be evocative enough for people who have not been exposed to a variety of forest landscapes; that without prior experiences to draw on people are unable to judge the quality and uses of a landscape. Some felt that siting the study in visitor centres, with their differing standards of displays and visual aids, would in itself affect the validity of the study. It was pointed out that photographs may not give respondents enough data to pick up on nature conservation issues, for example whether a place is rich in wildlife, or indeed many of the experiences of being in a forest, for example the wilderness experience. There is also the problem of distant as against close-up views of the forest and the fact that the most critical view is that from the road and whether this creates an image likely to attract rural tourists.

Another of the shortcomings of photographs was felt to be their cross-sectional nature. They cannot probe the public understanding of a forest as a changing environment. They can give no idea of the differences that the age of the trees can make to the look of a forest, the seasonal variations in landscape quality, nor the effect of ever-varying weather conditions.

Both the research team and the sponsors strongly defended the research method chosen. It was pointed out that within the limits of the resources available visual cues would be adequate and provide a more detailed and accurate study of public landscape preferences than had ever been achieved before.

One attendee felt that revealed evidence was the simplest and most effective research technique. The idea behind this method is that people will pay for what they really like and that a study of payment trends gives the most accurate guide for future resource and facility planning. In reply it was pointed out that in the type of facilities we were discussing it is difficult and often not cost effective to collect entrance fees. Because of the lack of a payment infrastructure within Forestry Commission amenities at the time, as well as the shortcomings of this method, the suggestion was discounted.

An interesting question raised fairly early in the discussion, and one which had not been considered in great depth by either the sponsors or the research team, was the end point of the research. Those at the seminar were keen to have some feedback from the study and many

felt that another seminar at the end of the study would be fruitful. Investors in forests and also local authorities were singled out as groups who could benefit from a report of the findings and recommendations of the research.

One of the most popular reasons for visiting a forest is perhaps the 'wilderness experience'. This is something that is difficult to capture on a photograph, especially if it has got people in it. In contrast to this feeling of 'getting away from it all', there is the view that many people are uneasy about going to a forest alone, they are worried about getting lost or injured and in fact want signs within the forest telling them how far they are from the visitor centre or other landmarks. The survey will address this issue to shed further light on people's feelings whilst in the forest.

Recreation was felt to be an issue where clear guidance on what the public were looking for in forests would be of great value, both to the public and the private sector. It was recognised that new forests were unsuitable for recreation, although future recreation facilities need to be planned in at this stage. Some attendees felt that there was a great potential for resentment between the private landowners and the public, who believe that the forests and countryside belong to them. Others believed that this presented an opportunity rather than a problem and that in most cases private landowners are relaxed about people pursuing leisure activities on their land as long as they don't interfere with other interests. There was felt to be a need for forestry to be viewed in a broader way than simply for the production of timber. However, it was noted that it is difficult to judge the recreational quality of a forest simply by looking at it and that respondents would need a high level of sophistication to be able to distinguish between a forest with good aesthetic qualities and one with a variety of recreational opportunities.

It was felt that a clear distinction must be drawn between distant and close-up views of the forest because they represent an entirely different experience. It was felt by some that only close-up views would enable the public to judge the photographs in the way we expected them to, and that we should not mix distant and close-up views in the same group of photographs if we wanted valid responses. Some believed that the only judgement it was possible to make on distant views was whether the forest was suitable for the economic production of timber.

One suggestion made was that the photographs given to the landscape experts to evaluate (see Section 31) should also be given to members of the public. This would make direct comparison possible but the cost constraints of the contract meant it would not be feasible.

It was pointed out that it is important to establish the limits of what you're asking people to do because you cannot expect them to do more than they are capable of. Scale of forestry, not only in terms of the size of the forest itself but also of the open spaces within it, is important to determine. Some attendees felt that people cannot differentiate between various qualities of landscape, that is between man-made and natural.

The presence of a number of representatives from the private forestry sector gave a perspective to the debate perhaps not considered by the sponsors or the research team. There are two main kinds of investors; those who want to use the land themselves and those who see a forest simply as a commercial investment. The first group consists of those who are likely to look for a forest or plot of land of about two hundred and fifty acres, within an hour of Glasgow or Inverness airport. They use the forests themselves for recreation and look for a plot with river frontage and, ideally, a ruined cottage with planning permission. The commercial investor does not require either a house or river frontage but looks for land with easy access to markets, where the trees will achieve a good growth rate. The market value of a forest is not determined by its appearance.

A number of suggestions came out of this seminar, some of which it was possible to include in later phases of the research. It was felt that open-ended questions would be a way to determine the reasons for preferences expressed in the household interviews. This suggestion was taken on board and used. The idea that fifty members of the public could be asked to rate photographs in the same way as the landscape architects could not be implemented within the limits of the research budget. The whole issue of the validity of relying on photographs for this type of study was studied before the original research proposal was drawn up and the disadvantages of the system considered. However, it was felt that this method is a cost-effective way of getting a large sample of the public to evaluate landscapes and note was taken of the points raised when choosing the photographs for

inclusion in the study.

Overall then, the seminar in Edinburgh, although it focused largely on the issues involved with the methods of the research, gave us some useful suggestions from representatives of a variety of organisations that were considered as the research progressed.

17. The London seminar

As has been discussed previously, the meeting in London was approached in a more constructive manner because, although interesting, the Edinburgh seminar had provided us with little that would be useful in the later stages of the research. Topics were introduced one by one from the chair and the discussion that follows here is approached in the same way. The debate was a lively one, especially in the morning, with everyone prepared to make a contribution.

17.1 Factors informing public evaluations and preferences

There was a general feeling that the public did not understand that the forest is a constantly changing environment. As in Edinburgh, attendees felt that the public needed educating about the cycles of nature and how they affect a forest landscape.

All participants felt that people seek a natural-looking landscape because they feel geometric designs are intrusive. Tree planting was seen as popular for two reasons, it was not only a way of providing something for posterity, to outlive the planter, but also something that people can relate to because they think in terms of trees not forests.

There are, it was felt, two views about the countryside, that held by rural dwellers and that held by urban dwellers. However, rural views are changing because of the small but powerful group of ex-urban dwellers who now live in the countryside. In general it was felt that urban dwellers see forests as something to look at. When they go into the countryside they expect to see certain things, the idyllic view which, if they do not see, they are disappointed. The point was also reiterated that people see landscapes cross-sectionally and do not perceive change. The general view held was that coniferous trees are perceived as bad but broadleaved trees are believed to be good.

Everyone agreed that the great storm of October 1987 had been beneficial in a number of ways. It had shown the public the need for a positive management of the landscape, a concept which previously they had been unwilling to accept. Views on the storm could be an important way of probing public opinion, it was suggested. Over a very short period of time there had been clear changes in the landscape which now most people say they do not notice.

'Who are the public?' proved to be an interesting question. In educational terms it would perhaps be interesting to consider people who live near woodlands as a useful sub-group. Do they know more about woods and forests than those who visit from greater distances? The Woodland Trust representative said his group see the views of the public as more important than those of experts.

The use of the correct keywords in the research was felt to be extremely important. They can be used very effectively to elicit public reactions. 'Forests', 'woods' and 'broadleaves' were seen as positive words, whereas 'forestry' and 'conifers' were seen as negative. However, it was pointed out that it is the word 'conifer' itself which is negative, not the reality.

17.2 Are people concerned with what forests look like?

It was generally agreed that people respond to the picturesque and framed view and like a feeling of shelter and protection. Research has also shown that people like access to water. They like a forest to be interesting, with colour and variety, and the spaces between the trees are also a point of interest.

People felt that there was a difference in perceptions about trees and forestry between people in England and Scotland. People are more knowledgeable about forests in Scotland. Forestry is given more media coverage and is also written about as an industry.

The discussion then turned to the issue of fear within the forest. There was a belief in the group that many members of the public have a fear of trespassing because they do not know whether the places they wish to go are private or not. The public was seen as timorous, with a fear of getting lost. This threatening aspect of the forest was seen to be especially true for women, who may also be worried about venturing into these areas alone.

17.3 Economics of forestry

It was generally felt that forests are seen in an aesthetic light, as being here for pleasure and not as an industry. People, especially in the South of England, do not understand forestry as an industry but see forests simply as a leisure amenity. There is a certain element of the 'not in my backyard' (NIMBY) syndrome in this; forests are here for our pleasure, production takes place elsewhere. It is also true that conifers are associated with production and broadleaved trees with aesthetics. Public education about forestry should address the need for a balance between economics and amenities. Perhaps one way of educating people about forestry is by demonstrating the link between tree production and the various industries that use the timber. It was felt that people are interested in the uses of wood, especially in the older crafts. Another question that arose was whether the public thought of coppicing as a forest industry.

One of the experts pointed out that many landowners, especially the traditional ones, are very unaware of the economics of forestry and are now paying the penalty of not having managed their forests properly. Timber production is not a priority for many people in the countryside. Landowners are only now beginning to realise that timber is a valuable asset. However, from the public's point of view many of the things they are concerned about cannot be translated into economic terms.

Changes in future policy in the public and private sectors are needed for a number of reasons. One is that Britain is one of the least wooded countries in Europe and is very dependent on imported wood. Also, there is increasing concern for, and awareness about, the destruction of the tropical rainforests. Tree planting is now recognised to be one way the country can reduce the damages of the greenhouse effect. It was thought by most participants that these reasons justify a programme of education in forest planning and management for the public.

17.4 Ownership and the private sector

As at the Edinburgh seminar, it was recognised that within the private sector there are two types of landowners. The first are the traditional owners who do not like to be told what to grow and are more likely to see access as a problem. Media coverage of upland forests and their owners has encouraged the second type of landowners to take an active interest in

designing 'nice' forests and cultivating an image. Two key words emerged as important at this stage of the discussions. Traditional woodlands are seen and accepted by the public as aesthetic and rural and therefore 'good'. Absentee landlord forests have a more negative image and are seen as 'bad'.

It was thought that many big changes have recently taken place that the public are not aware of. Their lack of comment about, for example, the sale of forests by the Forestry Commission was seen as proof of this. The Forestry Commission has a very low public profile, although it is associated with all forestry, good and bad, and many people think that every forester is part of it. Attendees felt that the Commission should work on their public image.

It was felt that in the private sector there is more resistance among managers to change than among members of the public. An important point made during this discussion was that, as far as the quality of a landscape is concerned, the legal ownership of the land is unimportant.

17.5 Access - should there be more?

During the focus group discussions the issue of access had come up a number of times. Members of the public see access as a logistics problem for those without private transport who live away from the countryside. Many believed there was a need for more public transport; this has of course been recognised and documented by the Countryside Commission. Attendees at the expert seminar did not seem to see access in the same way, putting more emphasis at the local level of actually going into the forests.

The group contained a fairly vocal representative of the farming lobby who saw farmers as an important sub-group of the public whose opinions should be taken into account by the research team. He expressed the view that the public are their own worst enemies in their use of the countryside, because of their ignorance. He suggested two improvements. Firstly, an increase in public knowledge of the countryside and what happens there and, secondly, a legal structure that allows effective organisation to take place. He felt that local authorities, the Countryside Commission and the Ramblers Association are the groups that should be responsible for public education.

The discussion turned into a more general one about the best methods of educating the public. An example of public education in action which was given was the 'demonstration' or 'educational' farm. In much the same way, regenerated woodland has been solely used as an educational resource by local authorities. Another suggestion was that notices could be provided outside forests and farmlands, explaining what takes place within them and the rationale behind their management. It was pointed out that the public want to get involved in the management of forests and that this presents public and private landowners with a useful opportunity. By increasing public access and allowing the public more involvement, you can decrease abuse problems. Overall it was felt that intensive management and communication overcame abuse, and that good forest design was a product of good management.

17.6 What do people want to do in forests?

The issue of access and of what people want to do in forests was the one in which differences between participants representing landowners and farmers and those representing the general public became the most marked. Whereas the farming representatives were keen to make the rules for access more structured and well-known, representatives of the public felt that, as well as access, the public should be able to expect improvements in recreation facilities and more concern for nature and nature conservation projects.

Representatives of private forest owners pointed out that income was needed to provide and maintain amenities. There is also the whole question of public safety. The forest has to be carefully managed once the public have access to ensure that the trees are in a safe condition and that pesticides are not used in areas accessible to the public. There is, of course, also the need to keep people away from any tree-felling or other maintenance operations.

17.7 The carrying capacity of a forest

One of the distinct attractions of a forest is the 'wilderness experience' - it is seen to be somewhere where you can get away from other people. The large carrying capacity of forests means that they are suitable for a variety of uses without detracting from this experience. However, increasing use means there must come a time when the appeal of the amenity

will be destroyed by its overuse. The presence of too many people can affect wildlife, forestry management and timber production, as well as the recreational experience of the forest. However, attendees at the seminar felt that this point had not yet been reached.

In fact, many stated again their belief that, by increasing public access and allowing the public more involvement, you can decrease abuse problems. Another deterrent suggested was to remove evidence of damage immediately.

A source of income for forest owners that was seen to be slightly controversial was the leasing of the land to external users, for example to the organisers of car rallies. However, there was a general feeling that woodland owners should explore further collaboration with other bodies that would give more mutual benefits, because one of the advantages of forests over farmland was the ability to walk freely there.

17.8 Education and intervention

It was felt (as at Edinburgh) that public education should incorporate the idea of forestry as an industry. The inconsistency between public concern over the destruction of the rainforests and the resistance to change in their attitudes to forests was pointed out. A representative of the timber industry was keen to point out the importance of educating the public in this area. However, in response, it was noted that it is not only what the public ought to know but also what they want to know that we should be looking at. A member of a countryside protection group pointed out that forests are not just commercial resources but historical and wildlife assets too. Thus, we should instead be trying to provide a base for an informed attitude towards forestry as a land use.

One of the reasons why perhaps it is difficult for the public to see forestry as an industry is the fact that forests are so quiet. There is, therefore, a need to provide a base for an informed attitude towards forestry as a land use and to translate the market reality into the management of woodlands and forests.

17.9 Consultation and participation

It was widely agreed that there should be an improvement in the opportunities available for the public to be consulted on landscape issues. In addition there is a need for greater links and

more trust to be built up between the various bodies concerned with landscape design and use. In this way there would be greater opportunity for open and positive communication and, for example, nature conservation groups would not always have to be taking up issues with the Forestry Commission. However, it was felt that, until there is a public exhibition of plans the general public will not be able to have a say in, or know how decisions are reached. In addition, it was pointed out (and this is obviously central to this research) that there is a need to include concepts of acceptable and unacceptable landscapes in consultation strategies.

18. Appendices

18.1 Appendix A - Summary

Overall the expert seminars raised many significant issues relevant to the research. They also gave an indication of points that it would be important to include in the questionnaire and made explicit some differences between the public and the private sector. These main points were outlined and considered at a later meeting. They were as follows:

1. Forest age - cyclic views of forests
2. Public fear - in forests and countryside
3. Ownership - public awareness and sense of rights
4. Perceptions of forestry management
5. Forestry as an industry - attitudes, perception and knowledge
6. Experience of forests - perceptual, internal, aesthetic experience
7. Scale and design - public preferences
8. Expectations - of rural versus urban populations
9. Key words - to elicit people's perceptions (e.g. 'conifers', 'broadleaved', 'wood', 'forest')
10. Appearance - enclosure, shelter, protection, picturesque, water
11. Attitudes to forests in global terms - rainforests, greenhouse effect, need for policy changes
12. The need for more public education about forests

18.2 Appendix B - Views about the Forestry Commission

An issue that emerged from the seminars was the perceptions the experts have about the Forestry Commission. A summary of the main

points of these are listed below:

1. The Commission was seen to have an important role in leading the way in the provision of recreation facilities in forests.
2. The recreation officers in the Forestry Commission were seen to take an important role in leading the private sector in provision of recreation facilities.
3. The public are inclined to be anti-afforestation in their local area.
4. There was a perception that people think that forestry is reprehensible because it 'produces straight lines on a hillside'.
5. There is a reaction to overall styles of management; if afforestation is the overall style reactions are more negative.
6. There is a changed perception of the Forestry Commission; it used to be seen as friendly but now it is seen to be based on economics. 'The hard attitudes of the Commission are reflected in the hard lines of the trees.'
7. There has been little public comment on the sale of forests by the Forestry Commission and it would seem that this reflects a lack of public knowledge. Many people know little about the Forestry Commission and consider that every forester is part of the Forestry Commission.
8. For farmers, all forestry that has had adverse effects on the landscape is associated with the Forestry Commission.

18.3 Appendix C - Research questions

The seminars raised a number of questions for the research team to consider. These can be summarised as follows:

1. Will the material in the visitor centres condition the responses to the survey?
2. Are visual clues enough to relate to the internal experience of forests?
3. Does the research rely on people with good prior knowledge of forests?
4. Will the sample include a representative mix of urban and rural respondents?
5. In what ways should the research findings be presented (e.g. seminar presentation or report, etc.)?
6. What is the end point of the research?
7. Are we overestimating the levels of knowledge of people in the visitor centres?
8. How can you tell whether somewhere is good for something specific (e.g. picnicking, walking) if you do not see the distant and the closer view in the same batch?

18.4 Appendix D - Participants in the expert seminar, Forest Landscapes of the Future, 12 July 1989, Edinburgh

1. Dr G. Adams, Scottish Tourist Board
2. Mr V. Hammond, Tilhill Forestry Ltd
3. Dr R. Robinson, Nature Conservancy Council
4. Mr P. Milne-Home, Economic Forestry
5. Mr C. Strang, National Trust for Scotland
6. Mr N. Hooper, Convention of Scottish Local Authorities
7. Mr R. Smith, Association for the Protection of Rural Scotland
8. Mr T. Huxley, Scottish Wildlife Trust
9. Mr J.G.S. Gill, Forestry Commission
10. Mr R. Broadhurst, Forestry Commission
11. Mr R. Bryant, Forestry Commission
12. Professor T.R. Lee, University of St Andrews
13. Dr D. Uzzell, University of Surrey
14. Ms B. Wren, University of Surrey
15. Ms M. Hickman, University of Surrey

18.5 Appendix E - Participants in the expert seminar, Forest Landscapes of the Future, 13 July 1989, London

1. Ms S. Bell, Country Landowners Association
2. Ms P. Evans, Council for the Protection of Rural England
3. Mr D. Russell, The National Trust
4. Ms Fottit, Timber Growers UK
5. Mr F. Couzens, Woodland Trust
6. Mr R. Turner, National Farmers Union
7. Mr D. Randall, Landscape Institute
8. Mr M. Hanna, English Tourist Board
9. Mr S. Lowczowski, The Camping and Caravanning Club
10. Mr P. Johnson, Countryside Commission
11. Mr J.G.S. Gill, Forestry Commission
12. Mr R. Broadhurst, Forestry Commission
13. Professor T.R. Lee, University of St. Andrews
14. Dr D. Uzzell, University of Surrey
15. Ms B. Wren, University of Surrey
16. Mr J. Swabey, Forestry Commission
17. Ms M. Hickman, University of Surrey

Part 4

The household survey

19. Introduction

The aims of the survey were to provide information on the ways in which forests are perceived by the public, the extent and types of forest use, current attitudes towards forest design and management and public perceptions of the aesthetic aspects of forestry landscape.

The survey was conducted in four postcode areas, selected from: East Scotland, North-East England, North Wales and South-East England. A map of the postcode areas is shown in Figure 1 and a full listing of the geographical distribution of the sample by areas and districts is included in Appendix F.

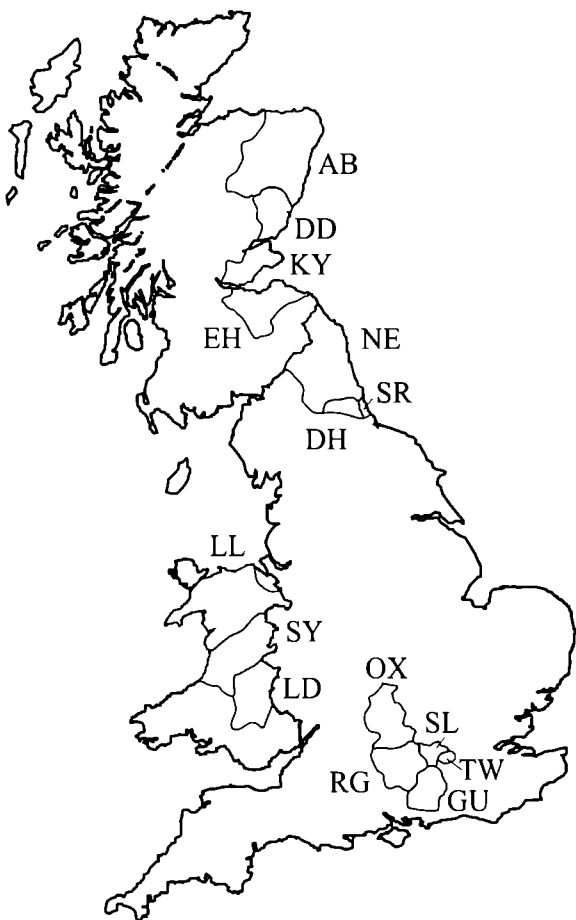
Two hundred interviews were completed in each area. The interviews were conducted in the home and lasted, on average, 30 minutes. The fieldwork was supervised by the Setchfield Research Centre. The full questionnaire used in the survey is given in an Appendix to this section of the report.

The intention was not to draw a sample representative of the U.K. but to allow comparison between four distinctive areas and, more particularly, to generate an aggregate sample within which relationships between a wide range of the relevant variables could be explored. In the event, it will be seen from Tables 1 to 8 below that the total sample is sufficiently similar to the U.K. distribution of age and sex to allow cautious generalisation. So far as regional comparisons are concerned, the Scottish figures represent the whole of Scotland quite closely, but somewhat over-represent the 20-30 years age group at the expense of the elderly. The other three samples show a reasonable fit with their regions but are somewhat less representative of England and Wales, or Wales considered separately. The most noticeable deviations are that the North-East England sample over-represents the 31-40 years age group at the expense of the 40-60 years age group, and in the South-East England sample there is a fairly substantial over-representation of the 21-40 years age group at the expense of the under 21 years and 51-60 years age groups.

It was not possible to control for the participants' ease of access to woods or forests and it is evident from the data that there are large differences between the four samples in this respect. For these reasons, comparisons between regions should be made with caution.

A note giving a brief explanation of the statistics used in the report is given at Appendix I.

Figure 1 Map of postcode areas included in sample household survey



- Postal areas:**
- | | |
|------------------------|--------------------------|
| AB = Aberdeen | NE = Newcastle-upon-Tyne |
| DD = Dundee | SR = Sunderland |
| KY = Kirkcaldy | DH = Durham |
| EH = Edinburgh | |
| LL = Llandudno | OX = Oxford |
| SY = Shrewsbury | SL = Slough |
| LD = Llandrindod Wells | TW = Twickenham |
| | RG = Reading |
| | GU = Guildford |

20. Who are the users?

In addition to providing demographic information about the sample population, this section gives information on the frequency and duration of forest visits and with whom they were made. The mode of transport, the distance travelled from home and the length of the walk into the forest are analysed. Lastly, relationships between the frequency of visits and a number of relevant variables are examined. These are the size of the residential area from which respondents originate, whether they have country backgrounds, whether they belong to environmental groups and their social status.

20.1 Population profile

Tables 1 to 5 give the distribution of the age, sex, employment status, social status and education of the sample, by percentages, cross tabulated by region.

In those cases where whole population percentages are included for comparative purposes, the regional data (column 2) are based on the most recent figures that were available at the County/Scottish Region level, i.e. the 1981 Census. For this purpose, County and Regional sub-totals were aggregated as follows:

<u>East Scotland</u>	Tayside Grampian Fife Lothians
<u>North-East England</u>	Durham Northumberland Tyne & Wear
<u>North Wales</u>	Clwyd Gwynedd Powys
<u>South-East England</u>	Berkshire Oxfordshire Surrey

Table 1 – Age by region

Age	Region												Row means		
	E. Scotland			N.E. England			N. Wales			S.E. England					
	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %
Under 21	12	11	11	10	11	13	11	11	13	5	11	13	10	11	13
21–30	26	19	24	19	18	20	19	17	20	26	16	20	22	18	20
31–40	19	19	19	26	18	19	19	19	18	25	20	19	22	19	19
41–50	16	16	17	14	16	18	12	15	18	15	16	18	14	16	18
51–60	13	16	15	11	17	15	18	16	15	10	16	15	13	16	15
61–70	14	19	14	20	20	15	21	22	16	19	21	15	19	20	15

$\chi^2 = 22.91$
df = 15
p = <.05

NB: 1 = Sample
2 = Region
3 = Country, i.e. Scotland, England or Wales

Table 2 – Sex by region

Sex	Region												Row means		
	E. Scotland			N.E. England			N. Wales			S.E. England					
	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %	1 %	2 %	3 %
Male	47	48	49	51	49	50	42	48	50	51	49	50	48	47	49
Female	53	52	51	49	51	50	58	52	50	49	51	50	52	53	51

$\chi^2 = 4.54$
df = 3
ns

NB: 1 = Sample
2 = Region
3 = Country, i.e. Scotland, England or Wales

Table 3 – Employment status by region

Employment status	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Still at school	4	2	3	1	3
Student	2	3	5	3	3
Full-time work	38	41	38	45	40
Part-time work	14	14	12	19	15
Unemployed	11	5	5	1	5
Retired	10	17	19	17	16
Housewife	21	18	18	4	18
Column total	100	100	100	100	100

$\chi^2 = 39.74$
 $df = 18$
 $p = <.001$

Table 4 – Social status by region

Social status	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
AB	8	17	13	28	17
C1	20	32	39	42	33
C2	31	30	19	17	25
DE	41	21	29	13	25
Column total	100	100	100	100	100

$\chi^2 = 91.36$
 $df = 9$
 $p = <.001$

Table 5 – Age education completed by region

Age education completed	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
14 or under	15	16	6	11	12
15–16	66	51	50	35	50
17–19	11	10	22	26	20
20–21	2	6	9	9	7
22 or over	1	5	9	15	7
Still in education	5	2	4	4	4
Column total	100	100	100	100	100

$\chi^2 = 77.48$
 $df = 15$
 $p = <.001$

20.2 The frequency of visits and related variables

Sixty five per cent of our sample reported (Question 4a) that they had set out specially to visit a forest at least once during the year preceding the interview. The figure rises to 73% for those who visited a forest as part of another trip. In both cases the modal category is ‘occasionally’. The frequencies for both forms of use, broken down by region, are given in Table 6.

It is difficult to compare the four regions by level of use except in broad terms. (For example,

it would be misleading to weight a daily dog walker as x365 against a once per annum day tripper.) However, if we combine ‘once’ with ‘occasionally’ to form an infrequent category and those visiting monthly or more to form a regular category, we can generate three groups (i.e. including the ‘nevers’) from which a pattern emerges (Table 7).

Table 7 shows that for both forms of visit, the Scottish sub-sample makes the least use of its forests. The S.E. England sub-sample makes most use of forests for special trips and the N. Wales sub-sample for en route visits.

Table 6 – Frequency of visits by region

Frequency of visits	Region								Row means	
	E. Scotland		N.E. England		N. Wales		S.E. England			
	Special trip %	En route %	Special trip %	En route %	Special trip %	En route %	Special trip %	En route %	Special trip %	En route %
Never	40	23	38	21	30	9	34	17	35	17
Once	10	14	11	12	6	11	6	15	8	13
Occasionally	31	51	33	56	37	59	30	51	33	55
Monthly	7	9	13	9	12	13	17	11	12	10
Weekly	8	3	4	2	10	5	10	5	8	4
Daily	4	0	1	0	5	3	3	1	3	1
Column total	100	100	100	100	100	100	100	100	100	100

Table 7 – Frequency of visits (groupings) by region

Frequency of visits	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Never	40	38	30	34	35
Infrequent	41	44	43	36	42
Regular	19	18	27	30	23
Column total	100	100	100	100	100

Frequency en route	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Never	23	21	17	9	35
Infrequent	65	67	66	70	42
Regular	12	11	17	21	23
Column total	100	100	100	100	100

NB: The positions of N. Wales and the S.E. England are transposed in the en route table to indicate the trend more clearly.

Table 8 – Length of walk into forest by region

Length of walk into forest	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Stayed near car	8	7	16	9	9
Walked:					
½ mile	27	21	23	23	23
About 1 mile	18	17	20	19	19
1–2 miles	25	24	17	21	21
2–4 miles	15	23	18	20	20
> 5 miles	7	8	6	8	8
Column total	100	100	100	100	100

However, conclusions about the frequency of visits have to be tempered by considerations of duration. Table 8 shows the regional distribution for Question 5c - ‘How far into the forest/wood did you go?’ N. Wales, although high on frequency of visits, has the highest proportion of car-borne and very short walk responses. E. Scotland is low on frequency of

visits and also low on distance penetrated into the forest.

This trend is a general one. A cross tabulation of frequency with length of walk into the forest shows low frequency of visits associated with short distances (Table 9). The relationship is just significant but not strong and N. Wales runs counter to it.

Table 9 – Frequency of visits by lengths of walk into forest

Frequency of visits	Length of walk into forest						Row means
	Stayed near base %	About ½ mile %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
Infrequently	70	69	72	64	54	53	65
Monthly	11	17	17	19	26	20	18
Weekly	14	8	8	13	15	23	12
Daily	5	5	3	4	5	5	5
Column total	100	100	100	100	100	100	100

When distances are collapsed to three groups (d, f = 6)

$\chi^2 = 11.82$

$p = <.05$

Both the regional differences and the association with frequency are closely reflected in the analysis of time spent on visits and so these tables are not presented here. The summary data for this variable are given in Table 10 and the only additional point worth noting is that 52% of the daily visitors fall into the ‘about one hour’ category, compared with 24% for the total sample.

Table 10 – Duration of visits

Duration	% of sample
½ hour or less	12
About 1 hour	24
1–2 hours	29
2–4 hours	25
All day	9
Overnight	1

Table 11 shows the relationship between the frequency of visits and the distance travelled to the forest. The trend shows, not surprisingly, that the closer one lives to a forest or wood the more frequent the visits. This is particularly evident in that 29% of the visitors who live within 5 miles go weekly or daily. An interesting exception to the general trend is the relatively high percentage of monthly visits from individuals travelling from 26 to 50 miles away. It has previously been suggested (Lee, 1968) that this distance represents an optimum for family outings - i.e. it is far enough away to ‘make a change’ but near enough to be economical in effort and cost by car and to be completed in half a day. The same effect occurs with ‘en route’ visits. There is an increase in

monthly visits of this kind for the 26-50 miles and over 50 miles distance bands. This effect is significant at the $p = < .05$ level (table not included).

Turning to the type of residential area from which forest visitors are drawn (Table 12), we see little distinction between those who live in cities or suburbs and those who live in small towns or villages. The country villager is most likely to fall into the ‘never visit’ category, and the city suburban dweller is an occasional or one time visitor somewhat more than expected. However, a marked difference is seen in this table with respect to the respondents who live in the open countryside. They appear to be high on one time, occasional, weekly and daily visits. It is only on monthly visits (probably the longer trips already referred to) that they do not reach the level of their more urban counterparts.

The difference in frequency of visits by social status (Table 13) is of some importance. There is a significant association so far as trips or outings are concerned, with the ABs visiting much more frequently. However, it will be noted that the trend is reversed for the ‘daily visits’ which, though small in proportion, must be large in number. Here it is the manual and blue collar end of the social class continuum that predominates.

A second point is that the ABs comprise only 17% of the total sample. This may under-represent the national figure but it is mentioned here because it will be shown later that views on forest management and other issues are related to social class and it has to be pointed out that, when considering the proportion of total visits, as distinct from visitors, the ABs become much less important.

Table 11 – Frequency of visit by distance travelled

Frequency of visits	Distance travelled: most recent visit					Row means
	0–5 miles	6–10 miles	11–25 miles	26–50 miles	More than 50 miles	
	%	%	%	%	%	%
Infrequently	53	66	72	65	74	65
Monthly	18	17	20	26	17	18
Weekly	18	14	8	6	8	12
Daily	11	3	0	3	1	5
Column total	100	100	100	100	100	100

$\chi^2 = 38.25$
 $df = 12$
 $p = <.001$

Table 12 – Frequency of visits by residential community

Frequency of visits	Size classification of residential area				Row means
	City/suberb	Small town	Country village	Countryside	
	%	%	%	%	%
Never	32	34	42	17	35
Once or occasionally	48	39	38	49	41
Monthly	14	14	10	11	12
Weekly	5	11	7	11	8
Daily	5	2	3	11	3
Column total	100	100	100	100	100

$\chi^2 = 46.10$
 $df = 12$
 $p = <.001$

Table 13 – Frequency of visits by social status

Frequency of visits	Social status				Row means
	A/B	C1	C2	D/E	
	%	%	%	%	%
Never	26	35	37	43	35
Once or occasionally	46	40	43	37	41
Monthly	17	14	12	7	12
Weekly	10	8	6	9	8
Daily	1	3	2	4	3
Column total	100	100	100	100	100

$\chi^2 = 20.45$
 $df = 12$
 $p = <.05$

Table 14 – Frequency of visits by environmental group membership

Frequency of visits	Membership of environmental groups				Row means
	None %	One %	Two %	More than two %	%
Never	38	24	13	9	35
Once or occasionally	42	41	47	27	41
Monthly	10	20	24	37	12
Weekly	7	9	13	27	8
Daily	3	6	3	0	3
Column total	100	100	100	100	100

$\chi^2 = 49.82$
 $df = 12$
 $p = <.001$

Table 15 – Frequency of visits by distance to countryside

Frequency of visits	Distance to countryside					Row means
	Less than %	1 / 2 to 1 mile %	1–3 miles %	4–10 miles %	Over 10 miles %	%
Never	27	42	32	42	36	35
Once or occasionally	44	42	40	42	39	41
Monthly	15	10	16	11	14	12
Weekly	10	6	9	5	7	8
Daily	4	0	3	0	4	3
Column total	100	100	100	100	100	100

$\chi^2 = 34.20$
 $df = 20$
ns

One reason for expecting the middle classes to make more use of the forest are that they are more likely to own cars and to be able to afford trips. But there are also cultural differences in recreation preferences and attitudes which we can best illustrate by referring to the greater likelihood that members of the AB group will belong to environmental groups and the much more frequent forest visits made by environmental group members (Table 14). This is a closer relationship with frequency than was shown for social class and it is likely to be the more basic determinant. It includes interestingly, a reversal in trend for daily visitors.

This general finding gains some support from the cross tabulation of frequency of visit with a question that asked how far the respondent lives from the nearest countryside (Table 15). It should be noted that this countryside is not

necessarily forest or woodland, but a similar finding emerges. Those living within half a mile of countryside are more likely to be forest visitors, but at further distances there is no clear relationship.

This seems a good point at which to mention that a 'country background' (about which we asked in Question 15b) does not predispose to more frequent forestry visits.

The composition of visit groups is important for recreational planning. In Question 5d we asked 'Who were you with on this last visit?' and the data are shown broken down by region in Table 16.

The overall picture shows that 70% of visitors are accompanied by a spouse or partner or are in a family group including children. However, the percentage with friends is quite high, at

Table 16 – Who accompanied?, by region

Who accompanied?	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Spouse/partner	26	42	34	22	31
Family	38	32	29	56	39
Friends	20	13	21	13	17
Alone	14	6	10	5	9
Club/group	0	5	3	2	2
Other	2	2	3	2	2
Column total	100	100	100	100	100

17%, and then there are 9% who visit alone. If the data are combined into ‘all family’, ‘friends’ and ‘alone plus others’, there is remarkably close similarity between E. Scotland and N. Wales and between the two English regions, with the latter being significantly more likely to be visiting in a family group. Even here, however, it is noticeable that S.E. England far exceeds all other areas for family with children visits and N.E. England for spouse/partner visits.

The frequency of visits by the different accompaniment groupings is shown in Table 17. Those who visit alone, although only a small proportion of the total (9%), are nonetheless most frequent in their use. Following this is the spouse / partner group and there is not a large difference between this and the family / children group.

Turning to mode of transport (Question 5f), Table 18 shows the breakdown by region.

Table 17 – Frequency of visits by ‘who accompanied?’

Frequency of visits	Who accompanied?						Row means
	Spouse/ partner %	Family/ children %	Friends %	Alone %	Club/ group %	Other %	%
Infrequently	60	66	76	47	62	40	65
Monthly	26	20	13	10	15	0	18
Weekly	10	12	9	28	15	0	12
Daily	4	2	2	15	8	50	5
Column total	100	100	100	100	100	100	100

$X^2 = 82.47$
 $df = 15$
 $p = <.001$

Table 18 – Mode of transport by region

Mode of transport	Region				Row means
	E. Scotland %	N.E. England %	N. Wales %	S.E. England %	%
Car	61	81	80	81	77
Walk	33	12	16	15	19
Other	6	7	4	4	6
Column total	100	100	100	100	100

Table 19 – Frequency of visits by mode of transport

Frequency of visits	Mode of Transport			Row means
	Car %	Walk %	Other*	%
Infrequently	67	49	56	65
Monthly	21	13	22	18
Weekly	10	25	13	12
Daily	2	13	9	5
Column total	100	100	100	100

$\chi^2 = 41.85$

$df = 6$

$p = <.001$

*Bus, bicycle, train, horse

Although, as expected, car-borne visitors predominate (77%), the percentage of our respondents whose most recent visit was on foot is nonetheless substantial at 19%. In E. Scotland, however, presumably for geographical reasons, it is as high as a third (33%).

Furthermore, Table 19 shows that those who walk to the forest are much more likely to visit it often. Even the 'other' category, probably because it includes horse and bicycle, are more frequent visitors than those who made their most recent trip by car. Indeed, although we earlier pointed to the doubtful validity of deducing the absolute number of visits by weighting these reports of frequency, it appears that a literal weighting would generate more walking than car-borne visits.

Obviously, number of visits considered by itself is no better as a criterion of use than numbers of visitors. The broad aim of this analysis is merely to indicate that visitors to forests for recreation are by no means overwhelmingly car-borne

20.3 Prediction of frequency of visit by multiple regression analysis

In view of the practical importance of the frequency of forest visits, this variable was explored further using the form of analysis known as multiple regression. This attempts to select a group of 'predictor' variables which, when optimally weighted and combined together, will give the closest prediction of the behaviour of particular concern - in this case the frequency of visits to forests.

An extensive list of variables that might be expected to have some relationship with frequency of visit was entered in the first analysis. The variables are listed in Table 20, together with their correlations with frequency. It will be seen that all the correlations are low, but that level of education, distance travelled on last visit, mode of transport used, and membership of environmental groups are significant. It is important to note that none of the 'demographic' variables are related to frequency of visiting.

The multiple regression (R) reaches only .243 and this is achieved with the three variables - environmental group membership, distance of travel and mode of transport. If all variables are included, $R = .264$, but this accounts for only 7% of the variance. (It is important to note in relation to mode of transport that it is walking that is positively associated with frequency.)

A second multiple regression analysis retained these predictors but added possible links between the frequency of visits and the likelihood of engaging in similar activities, i.e. a drive in the countryside, walk in the countryside, visit to a heritage site or involvement in some special countryside sporting activity. Also included were two plainly attitudinal factors, such as the claim that forests can be distinguished from woods and the preference for broadleaved woods over mixed woods over conifers. The correlations for this analysis are also shown in Table 20. In the multiple regression analysis, it was found that the variable of distance travelled retained its first position but environmental group membership gave way to the forest/woods distinction, followed by engaging in special

Table 20 – Correlations of ‘predictor’ variables with frequency of forest visits

Analysis 1		Analysis 2	
‘Predictor’ variables	How often r = p =	‘Predictor’ variables	How often r = p =
Number of children	.010 .420	How far travelled last forest trip?	-.122 *.031
Years of education	.091 *.028	Environmental group	.176 *.003
How near to countryside?	.011 .413	membership	.211 *.001
How far travelled last forest trip?	-.140 *.002	Car or walk last forest trip	-.108 *.049
Locality: urban/rural	.026 .292	Been for drive in country	.050 .223
Environmental group	.176 *.003	Been for walk in country	.003 .483
membership	-.027 .287	Visited heritage site	-.156 *.008
Sex	-.001 .488	Pursued country sport	-.172 *.004
Occupation	.041 .193	Forests different from woods	.114 *.040
Age	.147 *.001	Preferred tree species	
Car or walk last forest trip	-.041 .196		
Companions last forest trip			
Multiple R =	.264	Multiple R =	.390

NB: Correlations significant at less than the conventional level of p (i.e. .05) are marked with an asterisk

Table 21 – Comparison of woods and forests by social status and region

Social status	Region				Row means
	E. Scotland n = 195 %	N.E. England n = 189 %	N. Wales n = 195 %	S.E. England n = 163 %	n = 742 %
AB Different	63	76	60	72	70
AB Same	37	24	40	29	30
C1 Different	50	65	56	68	61
C1 Same	50	35	44	32	39
C2 Different	36	53	34	50	44
C2 Same	65	48	68	50	60
df = 3					
Chi square +	6.13	6.46	8.72	6.39	39.39
	ns	ns	p < .05	ns	p < .001
Total sample					
Different	41	61	49	64	54
Total sample					
Same	59	39	51	36	45

X² (total sample) = 26.69
df = 3
p = <.001

countryside activity and finally a preference for broadleaved trees. Together these gave a more useful multiple correlation of .336 and, when all the variables were included, this was raised to .390, accounting for 15% of the variance.

It has to be said that although these ‘predictor’ variables are plausible enough, even their optimal combinations do not go very far in telling us which people make frequent forest visits or for what reasons. However, apart from the ‘distance travelled’ variable, the ‘general attitude to the countryside’ variables seem to contribute most and these are really ‘shared effects’ rather than causes of frequent visiting. The only practical recommendation that can be drawn from this analysis is that improved accessibility, i.e. providing forests nearer to more people, especially within walking distance, will increase usage more than any other method, such as targeting publicity to particular groups.

21. Users’ perceptions of forests and woods

We turn next to the ways in which the sample population perceives forests and woods. This section explores whether forests and woods are perceived similarly, and, if not, in what respects the attitudes to them differ conceptually and whether these differences are consistent across social status.

The respondents were asked: ‘Do you think of forests as different from woods or are they really the same thing?’ (Question 6a). More than half the sample (54%) perceive a difference between forests and woods. Table 21 shows the data cross tabulated by social status and by region. There is a clear relationship with social class. A distinction between woods and forests is drawn by 70% of the AB sub group and only 40% of the DE sub group. In terms of regions, the relationship with social class is even stronger in the North-East and South-East of England than in E. Scotland and N. Wales.

If forests do differ from woods, the question then arises, in what ways? Table 22 is ranked in order of the most commonly perceived differences. The respondents were prompted to provide up to two ‘particular ways’ in which a distinction could be drawn and the table based on the total of 436 responses by those who had said, in answer to the previous question, that forests and woods are different.

Table 22 – How do forests and wood differ?

Differences between forests and woods	Responses n = 436 %
Forests are larger	43
Forests are denser	12
Forests equal conifers	10
Forests equal man-made	8
Forests are larger and denser	7
Forests are cultivated	6
More tree variety in woods	4
More to do in forests	2
Wildlife concerns	1
Forests are privately owned	1
Forests are commercial	1
Forests are quieter	1
Forests are spacious	1
Woods are spacious	1
Woods are wilder	1
Other	1
Forests are not man-made	0
Total	100

It appears from this table that the major differences perceived between forests and woods are based on physical differences such as size, density and tree type. The latter, which associates forests with conifers, is third in frequency, but at only 10% is much less important than the size distinction (43%). Additionally, a difference is suggested with respect to human intrusion, with forests being perceived to be created and cultivated by humans (8% + 6%). It should be noted that differences in terms of the quantity or variety of wildlife are not nominated by more than a very small percentage of the sample. The same comment applies to the recreational activities that may be pursued in forests as distinct from woods.

21.1 Activities on last visit

Table 23 shows what activities people were involved in during their most recent forest visit. It gives a cross sectional representation of the distribution of activities. These responses were obtained (in answer to Question 5e) on a yes/no basis and most visits involved more than one activity, with a mean of 2.64 per visit.

Table 23 – Activity on most recent forest/wood visit

Activity	%
Walking (n = 573)	62
Viewing scenery (n = 341)	43
Looking at the flora (n = 285)	36
Looking at the fauna (n = 280)	35
Picnicking (n = 179)	22
Walking the dog (n = 163)	20
Following nature trails (n = 100)	13
Playing games (n = 94)	12
Resting/sleeping (n = 51)	6
Reading (n = 32)	4
Fishing (n = 21)	32
Courting (n = 20)	2
Camping (n = 13)	2
Horse riding (n = 10)	1
Orienteering (n = 8)	1
Boating (n = 11)	1
Cycling (n = 10)	1

The most favoured activities, that is those engaged in by the most people during their last visit, include walking with or without a dog, viewing scenery, looking at the flora and/or fauna, picnicking and playing games. Those activities engaged in the least include resting/sleeping and the more specialist leisure activities as cycling, boating, orienteering, horse riding, camping, fishing and reading. However, it may be noted that a very high proportion of the public who are involved in the ‘general’ activities rely indirectly on forest planning, landscape design and access policy, while a smaller but significant proportion depend directly on specific recreation provision and services.

The form of this question listed eighteen possible activities and respondents claimed to have engaged in an average of 2.64. This gives rise to the question whether the activities occur in combinations. A more detailed analysis reported later (Section 26) shows that there are distinct groupings of forestry activities and those who pursue them show clear differences in their perceptions of forests and their feelings when in forests, as well as, in some cases, being drawn from different age, sex, education and occupation groups.

22. Experiencing the forest

This section explores the experience of a forest in terms of the affective responses that it may evoke. These responses are analysed first in rank order of frequency and then cross tabulated by sex. The main ‘factors’ underlying these responses are derived by factor analysis and relationships with other variables are explored.

Question 10 asked: ‘How much would you agree that each of the following describes your feelings in general when you are in/have been in forests?’

Overall, Table 24 suggests that being in a forest is a positive experience. The highest percentage agreement is with feelings of happiness, the freedom to explore, feeling uplifted/revived, feeling close to nature and relaxed. In terms of disagreement, a high percentage of individuals disagree that they are bored or feel hemmed in when in a forest. Those responses which assess whether people feel worried when alone, vulnerable, experience fears of getting lost or trespassing are equally clear. One third, an unexpectedly high proportion of the sample, agree or agree strongly that they experience these feelings when in forests. Those who admit also to feeling insecure comprise a quarter (24%).

A feeling of uneasiness is one of the least equivocal items in our list and we therefore took this single measure and related it to sex and to the distance penetrated into the forest on the most recent trip. It is clearly shown in Table 25 that, as expected, women are consistently more uneasy in forest settings than men. Overall, 23% of women and 9% of men report feeling uneasy. At first sight it may appear that they are less uneasy the further they penetrate into the forest but, of course, the more likely explanation is that their lack of concern is cause and not effect. Those who anticipate feeling uneasy if they penetrated far into the forest avoid doing so. The trend for men is clear cut; although only a small percentage feel uneasy, the number diminishes consistently across the three distances. The female trend is less consistent.

These data are the more impressive because the questions on distance penetrated and feelings are presented quite independently.

Even more marked differences between the sexes are apparent in response to the question on worry about being alone (Table 26), with 58%

Table 24 – Feelings when in forests

Feelings in forests	Responses					Mean scores
	Disagree strongly %	Disagree %	Neutral %	Agree %	Agree strongly %	
Worried when alone	23	30	11	24	13	3.29
Afraid of trespassing	13	33	19	31	4	3.20
Vulnerable	17	35	17	26	5	3.33
Secure	4	20	31	38	7	2.76
Uneasy	18	46	19	15	2	3.63
Happy	1	4	12	64	19	2.04
Afraid of getting lost	17	33	19	15	2	3.06
Close to nature	1	2	11	60	26	1.92
Free to explore	1	5	11	60	23	2.01
Uplifted/ revived	0	4	27	49	20	2.15
In touch with the past	7	21	36	29	7	2.92
Relaxed	1	3	9	65	22	1.96
Bored	41	47	7	3	1	4.21
Hemmed in	40	45	9	5	1	4.18

NB: Means calculated on 5-point scale from 5 = disagree strongly to 1 = agree strongly

Table 25 – Feel uneasy by distance of forest walks by sex

Whether feel uneasy	Distance walked into forest by sex: most recent trip					
	½ mile or less		Up to 2 miles		2 miles or more	
	Male n = 71 %	Female n = 94 %	Male n = 103 %	Female n = 120 %	Male n = 84 %	Female n = 65 %
Disagree	68	48	78	49	89	66
Neutral	12	13	51	52	48	19
Agree	11	17	8	27	2	15

Male χ^2 = 11.22 Females (n = 279)
Female χ^2 = 11.22 Males (n = 258)
df = 4
p = <.05

Table 26 – Worried about being alone in forest by sex

Worried about being alone	Sex		Row means
	Male %	Female %	
Disagree strongly	37.3	8.5	22.2
Disagree	38.7	21.4	29.6
Neutral	11.3	12.1	11.7
Agree	10.2	36.3	24.0
Agree strongly	2.5	21.6	112.5
Column total	47.6	52.2	100.0

$\chi^2 = 201.10$
 $df = 12$
 $p = <.000$

Table 27 – Feel vulnerable in forest by sex

Feel vulnerable	Sex		Row means
	Male %	Female %	
Disagree strongly	27.9	5.2	16.0
Disagree	40.0	30.5	34.9
Neutral	15.5	18.1	16.9
Agree	15.5	37.7	27.2
Agree strongly	1.1	8.5	5.0
Column total	47.7	52.0	100.0

$\chi^2 = 126.97$
 $df = 12$
 $p = <.000$

Table 28 – Feel secure in forest by sex

Feel secure	Sex		Row means
	Male %	Female %	
Disagree strongly	1.7	6.0	3.9
Disagree	11.0	29.8	20.7
Neutral	30.1	32.1	31.2
Agree	46.2	29.0	37.3
Agree strongly	11.0	3.1	6.9
Column total	47.8	52.0	100.0

$\chi^2 = 126.97$
 $df = 12$
 $p = <.000$

Table 29 – Distance of walk into forest by sex

Distance of walk	Sex		Row means %
	Male %	Female %	
Stay near base	9.3	7.4	8.3
½ mile or less	18.6	26.5	22.7
About 1 mile	19.0	20.5	19.8
1–2 miles	20.5	21.6	21.1
3–4 miles	21.3	19.8	20.5
5 or more miles	11.2	4.2	7.6
Column total	47.7	52.3	100.0

$X^2 = 13.38$
 $df = 5$
 $p = <.020$

of women and only 13% of men agreeing; on feeling vulnerable (Table 27), with 46% of women and 16% of men agreeing; on feeling secure (Table 28), with 32% of women and 57% of men agreeing.

The likely behavioural consequence of these important differences between the sexes in feelings experienced while in forest settings is seen in Table 29. The actual distances walked into the forest on the most recent trip, as reported by men and women respondents, are significantly different in the expected direction. Of course, it can be argued that other factors such as physical stamina or available leisure

time are the causal factors but, in view of the above evidence, this seems improbable.

One further implication of the feeling of vulnerability was explored. As reported below in further detail, we asked in Question 7 about a range of facilities that forestry managements might provide for visitors. When feeling vulnerable is cross tabulated with ‘want more signposts’ and ‘want more wardens’, the results are in the predicted direction though not significant. However, the relationship with ‘want more paths’, probably the most relevant one, is highly significant and this is shown in Table 30.

Table 30 – Feel vulnerable by want more marked paths

Feel vulnerable	Want more marked paths				Row means %
	1st choice %	2nd choice %	3rd choice %	Not chosen %	
Disagree strongly	18.8	16.7	21.1	15.4	16.5
Disagree	25.0	32.4	25.0	38.9	35.3
Neutral	21.3	16.7	23.7	15.2	16.8
Agree	27.5	22.2	25.0	27.3	26.4
Agree strongly	7.5	12.0	5.3	3.2	5.0
Column total	100.0	100.0	100.0	100.0	100.0

$X^2 = 28.41$
 $df = 12$
 $p = <.005$

It seems likely that similar effects on the lengths of walks into the forest and requests for way-finding facilities would show up from tables based on worry about being alone, fear of being lost, uneasiness, etc., but it was for this reason that the method known as 'factor analysis' was used to identify the more general dimensions underlying the individual items. The aim of this form of analysis is to deduce from the intercorrelations between many variables the relatively few main factors that underlie people's perceptions of the feelings they experience in forests or what forests may offer. It is a process of simplification - a way of teasing out and merging many variables into a smaller number of more important ones. Furthermore, the composition of each factor in terms of the contribution of each relevant variable (factor 'loadings') is given. (See - "A Note on the statistical methods used in this report" - Section 27.4, Appendix I.)

A factor analysis with varimax rotation was carried out on Question 10, which asked people to describe their feelings when they are in a forest. The rotated factor matrix is shown in Table 31.

As expected, the first dominant factor to emerge from the factor analysis is concerned with the feelings of *vulnerability*; 'fear of being alone' and of 'being lost'. The opposite pole has been labelled 'secure' from the item loaded most negatively on this factor. Fear of trespassing

also belongs with this factor, emphasising the general concern about orientation that is obviously experienced by some in forestry settings. It is not supported by the halfway positioning of *free to explore*, which is the focus of a separate Factor 3. Factor 1 accounts for 27.9% of the variance. It could account for the unexpectedly strong importance attached by our respondents to good paths (see Table 67 - Preferences for forest landscape attributes) and, to a lesser extent, their appreciation of nature trails. It could also account for the relatively short average distance that visitors are willing to penetrate into the forest and the correlation between distance penetrated and concern about feeling lost and uneasy.

The second factor is a clear dimension of pleasurable emotion - 'relaxed', 'happy' and *uplifted*; the latter most closely characterising a dimension that has 'bored' and 'hemmed in' at its negative pole. It accounts for 15.2% of variance.

The third factor is another positive one. Its central feature is *free to explore* and its associated feelings 'close to nature' and 'in touch with the past'. Not surprisingly, the item *uplifted* is also loaded on this factor, but it makes only a small contribution. One could speculate that Factor 2 is a general arousal factor but Factor 3 a more specific one associated with the natural world, the flora and fauna. Factor 3 explains 7.9% of the variance.

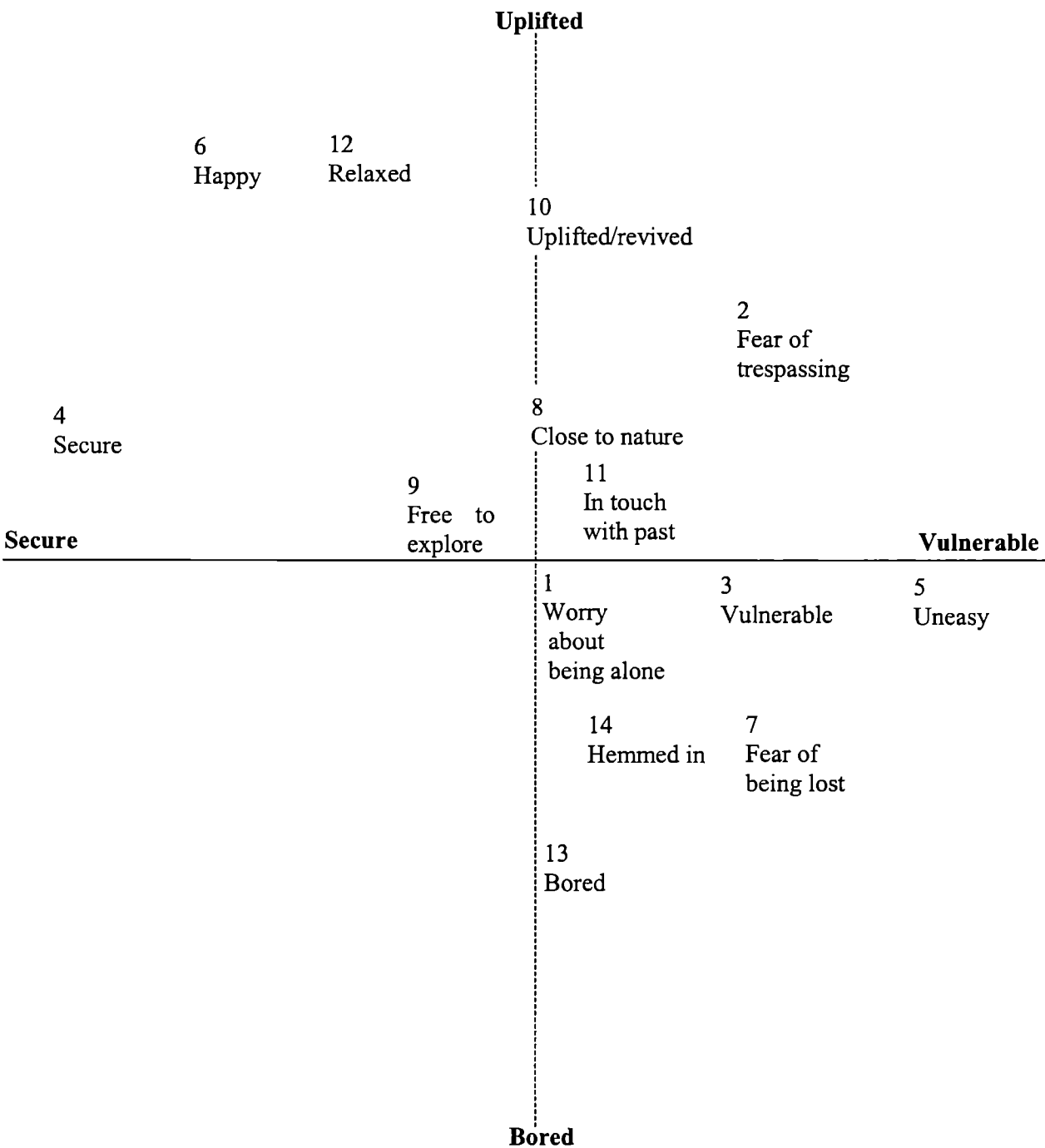
Table 31 – Feelings when in forests: Rotated Factor Matrix

Feelings when in forests	Factor 1 <i>Vulnerable</i>	Factor 2 <i>Uplifted</i>	Factor 3 <i>Free to explore</i>	Factor 4 <i>Claustrophobia</i>
Vulnerable	.842			
Alone, worry about being	.772			
Uneasy	.730			
Secure	-.711			
Lost, fear of being	.543			.325
Happy		.691		
Relaxed		.678		
Uplifted/revived		.643	.333	
Free to explore			.774	
Close to nature			.702	
In touch with past			.543	
Hemmed in				.765
Bored		-.512		.594
Trespassing, fear of	.437	.374		.492

Figure 2 Feelings when in forests

The co-ordinates of the first two factors are shown in Fig. 2

Horizontal Factor 1/Vertical Factor 2



Note: The position of an item in the space is determined by calculating distances on the *two* co-ordinates corresponding to the 'factor loadings' shown in Table 31 and plotting the point at their intersection.

Table 32 – Feelings when in forests (females only): Rotated Factor Matrix

Feelings when in forests	Factor 1 <i>Uplifted</i>	Factor 2 <i>Vulnerable</i>	Factor 3 <i>Free to explore</i>	Factor 4 <i>Claustrophobia</i>
Bored	-.718			
Relaxed	.712			
Uplifted/revived	.676			
Happy	.665			
Hemmed in	-.561			.489
Vulnerable		.827		
Secure		-.744		
Alone, worry about being		.708		
Uneasy		.658		
In touch with past			.715	
Free to explore			.699	
Close to nature	.483		.484	
Trespassing, fear of				.795
Lost, fear of being	.315	.400		.402

Finally, another small but significant Factor 4 accounts for 7.1% of variance. It is the wholly negative experience of *claustrophobia*, feeling ‘hemmed in’, ‘bored’ and experiencing the twin fears of being lost and being found trespassing.

In view of the importance of the *vulnerable* factor, it was decided to repeat the factor analysis with the female part of the sample only. Although it has already been shown that these feelings are not exclusive to women, they are obviously more salient for them. The pattern emerging, however, was almost exactly similar, with the one important exception that the positive emotions of the *uplifted* factor move into the dominant position, accounting for 26.3% of the variance, while *vulnerable* moves into the role of Factor 2, accounting for 14.4%. (See Table .32.) The remaining two factors mirror the first analysis, but account for 8.8% and 7.3% respectively - a total of 56.8%. The implication appears to be that women experience more positive emotions or are more coherent in their awareness of these emotions - despite their parallel feelings of vulnerability. A clearer picture will emerge when an analysis is made of the male only sample for comparison. The rotated factor matrix is shown in Table 32.

It follows that the male-only analysis (Table 33

and Figure 4) reveals a similar structure, although the vulnerable factor assumes first place.

A further factor analysis with varimax rotation was carried out on Question 10, which asked people to describe their feelings when they are in a forest, but this time the data for males only were input. The rotated factor matrix is shown in Table 33.

One advantage of factor analysis in this context is that it enables us to derive ‘factor scores’ These are based on the assumption that the factors show which items from the total set ‘belong together’ or are relevant to some unitary aspect of (in this case) the respondents’ feelings.

The aggregated scores (from 1 to 5) on the items which load on Factor 1, i.e. *vulnerable*, confirm the relationship with distance of walk into forest shown previously with the single item (Table 29), but now it is much more strongly significant and is shown with more differentiated journey lengths (see Table 34). It appears to be approximately linear. Bearing in mind that the ‘length of walk into forest’ variable refers only to the most recent trip (and not to the ‘usual’ length of trips); this is an unexpectedly strong association.

Figure 3 Feelings when in forests (females only)

The co-ordinates of the first two factors are shown in Fig. 3

Horizontal Factor 1/Vertical Factor 2

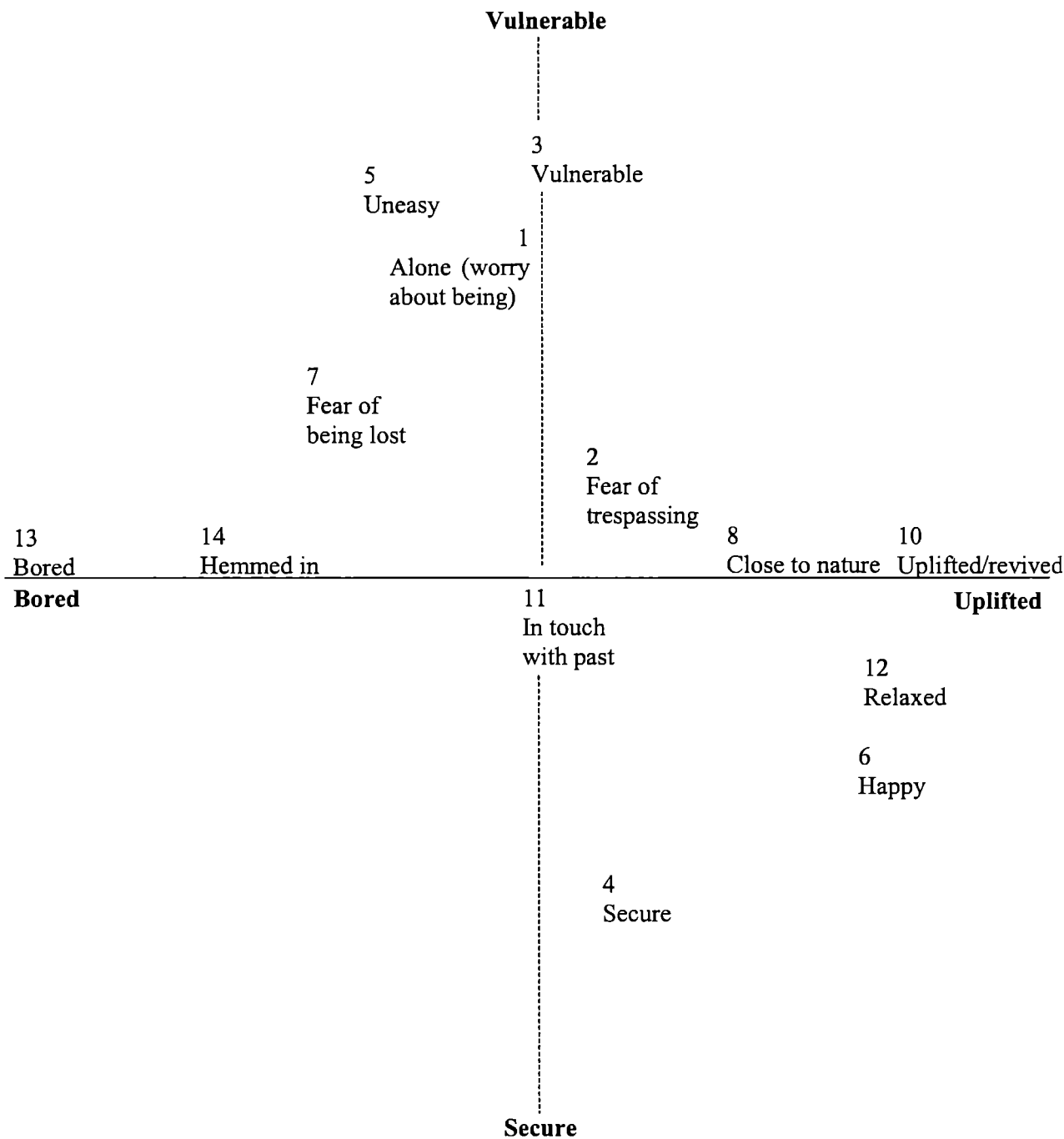


Table 33 – Feelings when in forests (males only): Rotated Factor Matrix

Feelings when in forests	Factor 1 <i>Vulnerable</i>	Factor 2 <i>Uplifted</i>	Factor 3 <i>Claustrophobia</i>	Factor 4 <i>Free to explore</i>
Secure	-.766			
Vulnerable	.721		.351	
Uneasy	.715			
Alone, worry about being	.649			
Lost, fear of being	-.381		.344	
Uplifted/ revived		.748		
Relaxed		-.672		
Happy	-.357	.635		
In touch with past		.439		
Hemmed in			.756	
Bored		-.431	.688	
Trespassing, fear of		.389	.472	
Free to explore				.785
Close to nature		.382		.700

Table 34 – Factor Score ‘vulnerable’ by length of walk into forest

Factor score ‘vulnerable’	Length of walk into forest						Row means
	Stay near base %	½ mile or less %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	%
0 to 5	–	2.2	8.6	8.9	8.9	25.0	7.8
6 to 10	38.9	39.1	42.9	22.2	60.0	43.8	41.0
11 to 15	55.6	37.0	20.0	46.7	20.0	31.3	33.7
16 to 20	5.6	21.7	28.6	22.2	11.1	–	17.6
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 35.67$
 $df = 15$
 $p = <.002$

The factor scores from the second factor *uplifted* are also related to the length of walk into forest, as can be seen from Table 35. This time, however, the association is more complicated, with a trend that is curvilinear. Those staying near base or making only short forays have quite high

uplifted factor scores, but thereafter the level is lower and shows the expected steady increase with distance of walk. This is hard to explain, unless the ‘stay near base’ respondents are faking ‘good’ or are the sub-category that feels uplifted but is constrained by also feeling vulnerable.

Figure 4 Feelings when in forests (males only)

The co-ordinates of the first two factors are shown in Fig. 4

Horizontal Factor 1 / Vertical Factor 2

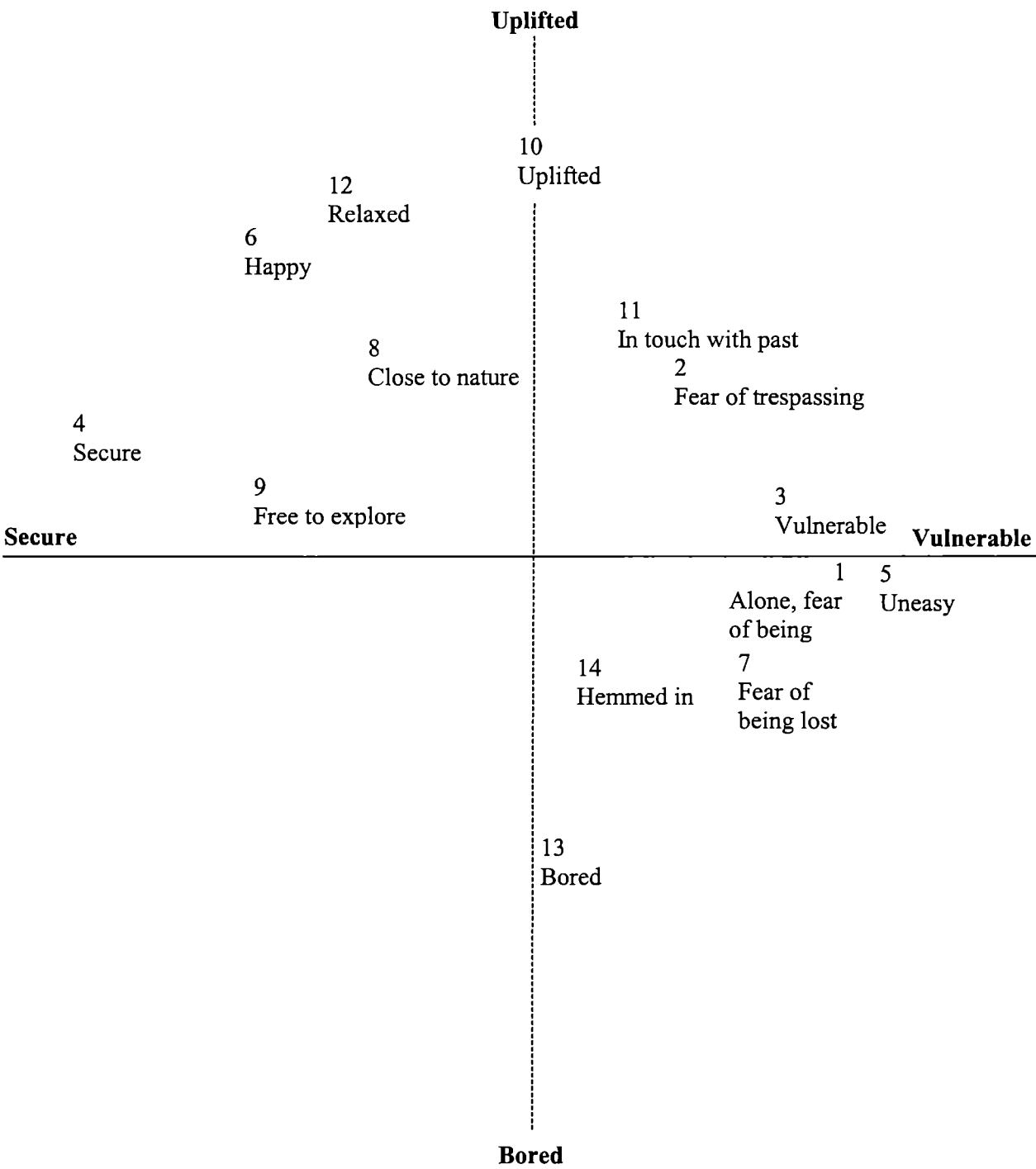


Table 35 – Factor score ‘uplifted’ by length of walk into forest

Factor score ‘uplifted’	Length of walk into forest						Row means
	Stay near base %	½ mile or less %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
6 to 10	14.3	32.0	42.5	42.9	16.1	5.9	30.4
11 to 15	85.7	68.0	57.5	57.1	83.9	94.1	69.6
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$X^2 = 15.44$
 $df = 5$
 $p = <.009$

Another, though less prominent, factor identified by this analysis was *claustrophobia*, i.e. feeling ‘hemmed in’, ‘bored’ and experiencing the twin fears of being lost and found trespassing. It is interesting confirmation that, as will be seen in Table 36, a high factor score on

this variable is associated with a low frequency of visits to the forest.

Also, as will be seen from Table 37, those with high scores on the factor *claustrophobia* also express a wish for more signposts in the forest.

Table 36 – Factor score ‘claustrophobia’ by frequency of visits

Factor score ‘claustrophobia’	Frequency of visits					Row means
	Never %	Infrequent %	Monthly %	Weekly %	Daily %	
0 to 5	22.7	33.3	35.4	48.0	–	29.8
6 to 10	71.1	64.7	62.5	52.0	100.0	67.0
11 to 15	6.3	1.9	2.1	–	–	3.2
Column total	34.7	42.3	13.0	6.8	3.3	100.0

$X^2 = 18.87$
 $df = 8$
 $p = <.016$

Table 37 – Factor score ‘claustrophobia’ by want more signposts

Factor score ‘claustrophobia’	Want more signposts				Row means
	1st choice %	2nd choice %	3rd choice %	Missing %	
0 to 5	28.6	27.8	4.3	31.7	29.7
6 to 10	64.3	72.2	91.3	65.1	67.0
11 to 15	7.1	–	4.3	3.2	3.2
Column total	3.8	4.9	6.2	85.1	100.0

$X^2 = 9.064$
 $df = 6$
 $p = <.017$

Table 38 – What forests may offer people by order of importance

What forests may offer people	Order of importance					Mean
	Not important %	Slightly important %	Quite important %	Important %	Very important %	
Peace and quiet	4	7	15	30	44	3.58
Privacy	14	16	23	29	17	2.87
Break from worries	8	8	19	33	32	3.73
Viewing wildlife	11	15	27	25	21	3.27
Healthy exercise	3	9	17	33	38	3.94
Day out with others	13	13	24	33	29	3.88
Walks for dogs	35	11	14	19	21	2.80
Escape city life	11	9	18	27	35	3.66
Beautiful scenery	0	2	9	34	55	4.42
Open to everyone	5	5	12	32	45	4.04
Good for children to play	12	10	17	26	36	3.67

NB: Mean calculated on 5-point scale from 1 = not important to 5 = very important.

23. What do forests afford their visitors?

This section explores the users’ perceptions of the relative importance of the different attributes forests have to offer; and the particular attributes that motivate them to visit forests. A further factor analysis is carried out on these data. There follows an analysis of the respondents’ perceptions of how forest trips compare with other kinds of trips for a ‘day out’. These are analysed by age and frequency of visits.

23.1 The relative importance of different forest attributes

In Question 9 we asked: ‘What is the importance to you of the following statements concerning what forests may offer people?’

It will be seen from Table 38 that forests are considered highly attractive in that they offer beautiful scenery, are open to everyone, provide healthy exercise and the opportunity for a day out. At the opposite, ‘less important’ end of the scale, they offer privacy and an opportunity to

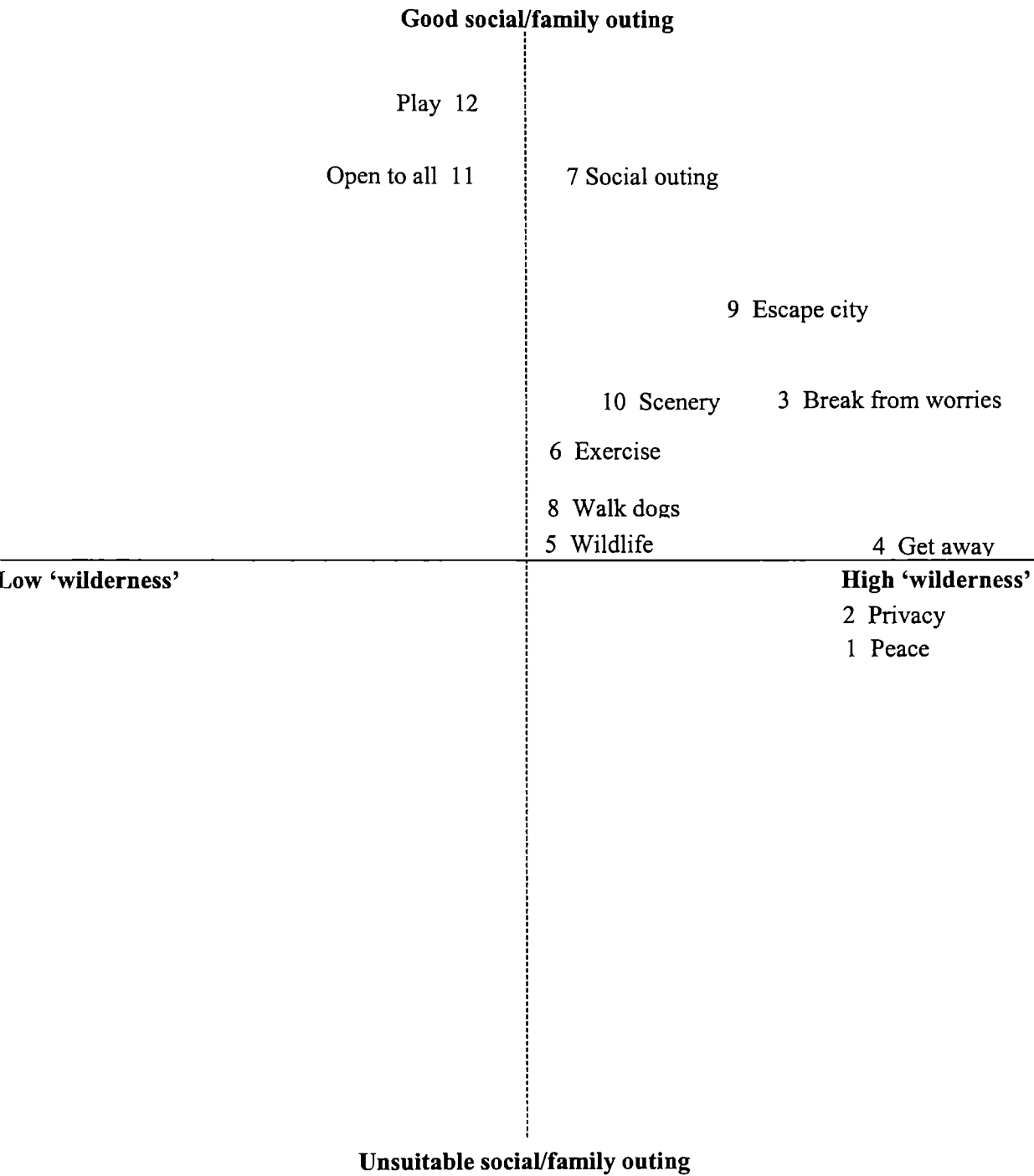
Table 39 – What forests may offer people: Rotated Factor Matrix

What forests may offer people	Factor 1 <i>Wilderness</i>	Factor 2 <i>Family/social outing</i>	Factor 3 <i>Walking trips</i>	Factor 4 <i>Walking the dog</i>
Privacy	.756			
Get away	.703			
Peace	.692			
Break from worry	.627	.334		
Play		.787		
Open to all		.706		
Social outing		.675		
Escape city	.420	.525		
Wildlife			.836	
Exercise			.620	.307
Scenery		.317	.519	-.475
Walking dogs				.715

Figure 5 What forests may offer people

The co-ordinates of the first two factors are shown in Fig. 5

Horizontal Factor 1 / Vertical Factor 2



walk the dog.

However, it will be apparent that some of these advantages are intercorrelated and it was decided to carry out a factor analysis in order to identify the main underlying dimensions.

23.2 Factor analysis of what forests offer

A factor analysis with varimax rotation was carried out on Question 9, which asked respondents about the importance of what forests may offer people. The rotated factor matrix is shown in Table 39.

The first factor is shown to include all those variables associated with privacy, 'escape', 'peace', 'getting away from it all' and a 'break from worries'. We have labelled this the *wilderness* experience. It accounts for 25% of the total variance.

Factor 2 receives its main contribution from 'good for children to play', but almost equally from 'open to all', 'social outing' and 'escape from city life'. Smaller contributions come from 'complete break from worry' and 'beautiful scenery' but these are low factor loadings, i.e. less important features of what Factor 2 is - clearly a *family/social outing* factor. It accounts for 15.2% of the total variance.

Thereafter, 'the chance to observe wildlife', 'healthy exercise' and 'scenery' combine into a third factor, more difficult to name, but best recognisable perhaps as the pattern of recreational pleasures enjoyed by older people without children who take a weekend drive into the country and then a longish walk. It is best named *walking trips*.

Finally, Factor 4 is a small but significant factor, mainly comprised of *walking the dog*. Healthy exercise for the owner is a secondary gain and, to give added plausibility by comparison with the previous factor, there is a negative loading on 'beautiful scenery'. Dog walking is usually routed on internal paths and often repeated over the same terrain.

These last two factors account for 9.1% and 8.7% of the total variance respectively, giving a cumulative total of 58.1%. This implies that quite a lot of the variance remains after these four main factors are identified, but further explanation has to rely on the variables considered singly.

The value of the procedure obviously depends

on the inclusion of a full coverage of variables initially. If people perceive important attributes of forest outings that we have failed to include, these could combine to strengthen our existing factors or constitute new factors.

It is important to note that the procedure does not invalidate any implications of the separate analysis of each variable; it extends them by considering their interactions. For example, considered singly, 'beautiful scenery' is assessed as the most important experience the forest offers. Factor analysis shows that it gains this distinction by a moderate contribution (one of them negative) to the shape of no fewer than three factors. It is a pervasive experience. Conversely, 'dog walking', least important in proportional support, is clearly a salient factor for some; they also appreciate the exercise it affords - but are not concerned with the scenery.

Looking at the comprehensive cross section of recent visit activities in Question 4e (which includes an open ended category) almost all of these are covered. A small exception is that the inclusion of a number of specialist recreational activities in the factor analysis (e.g. orienteering and horse riding) would have grouped into a factor, but if we had included 'provides scope for specialist recreation' it would have remained solitary or perhaps emerged with the dog walking (plus exercise, but no scenery watching factor).

One further point about this factor analysis. Referring again to the earlier activities (Question 4e), it will be noted that 62% of respondents reported 'walking'. The factor analysis implies that for most of these, walking is a means to a different end - i.e. either the 'wilderness' experience, the 'family/social outing' or 'walking the dog'. There remains, however, an affordance of 'walking trips', where the walking is the main motivation and more an end in itself.

Although the factor scores on the main factor *wilderness*, do not appear to be related to other variables we have tested, it is interesting that they are inversely correlated with the *vulnerable* factor identified earlier as one of the primary 'feelings when in the forest'. This indicates, at a high level of significance, that those who consider that forests offer a get away from it all, a break, peace, opportunity, etc., are also those who feel least vulnerable (Table 40).

Table 40 – Factor score ‘wilderness’ by factor score ‘vulnerable’

Factor score ‘wilderness’	Factor score ‘vulnerable’				Row means %
	0 to 5 %	6 to 10 %	11 to 15 %	16 to 20 %	
0 to 5	–	–	2.3	–	0.8
6 to 10	–	8.7	16.3	35.0	15.1
11 to 15	–	45.7	41.9	35.0	38.7
16 to 20	100.0	45.7	39.5	30.0	45.4
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 22.37$
 $df = .9$
 $p = <.008$

Table 41 – Factor score ‘wilderness’ by factor score ‘free to explore’

Factor score ‘wilderness’	Factor score ‘free to explore’		Row means %
	6 to 10 %	11 to 15 %	
0 to 5	1.7	1.0	1.3
6 to 10	20.7	11.8	15.0
11 to 15	51.7	32.4	39.4
16 to 20	25.9	54.9	44.4
Column total	36.3	63.8	100.0

$\chi^2 = 12.678$
 $df = 3$
 $p = <.005$

Factor scores on *wilderness* are also correlated with another factor from the ‘feelings in the forest’ set, that is with feeling *free to explore*. This is shown in Table 41.

It should perhaps be noted that these factors are drawn from independent sections of the interview (i.e. perceptions of what forests have to offer and reported feelings experienced while in forests) and the demonstration of correlation between them is mainly a means of confirming their validity.

23.3 Forests and woods compared with other forms of ‘day out’

Question 2 asked: ‘How do you think that forests and woods compare with other places

for a day out?’ Two reasons why respondents might sometimes choose to go to a forest or wood were asked for. The reasons elicited were coded and their frequencies are shown in Table 42. The largest category of first reasons is ‘peaceful, quiet’ (48%) and thereafter a number of categories are combined that could be described as ‘nature/wildlife’ (27%) and a set that represents various ‘recreational activities’ (16%). The remainder (9%) is a variety of ‘other’ reasons.

It will be seen from Table 42 that ‘peace and quiet’ (27%) is the most important single reason for choosing to go to a forest or wood for a day out. However, we have added to this group and broadened it to include various other *environmental* attributes, covering a total of 39% of the sample’s first reasons. Secondly,

Table 42 – Forest and woods compared with other trips

Forests and woods compared with other trips	First reason %	Second reason %
<i>Peace and quiet/environment</i>		
Peaceful, quiet	27	14
Sheltered	3	2
Fresh air, smells	3	2
Scenery	4	4
Clean	1	1
Unspoilt	1	1
	(38%)	
<i>Activities</i>		
Walking	8	6
Walk dog	4	3
Outing variety	4	2
Variety	7	7
	(25%)	
<i>Wildlife</i>		
Fauna	8	12
Flora	6	7
	(14%)	
<i>Family outing</i>		
Children enjoy	4	6
Picnicking	2	2
	(6%)	
<i>Feelings</i>		
Healthy, relaxing	2	3
Get away	3	4
	(5%)	
<i>Others</i>		
Nothing to do	4	1
Others	3	5
No reason	5	18
	(12%)	

there is a grouping of *activities* (23%) that includes walking and walking the dog. Flora and fauna combine to account for a further 14%. The *family outing* group is small at 6%, but it overlaps with *activities*. *Feelings* (5%) similarly might have been absorbed into the environmental group, but were kept separate in case they proved distinctive. Finally, the *others* (12%) category contains the inconsequential reasons. To anticipate a later finding, this is the group of reasons that characterise those who did not visit a forest at all during the preceding year. It is essential to note that the identification of these three attribute clusters is made on the basis of open-ended questioning and is wholly independent of the various 'supplied' attributes in 'What the forests may offer people'. Hence, the degree of correspondence between the two approaches is encouraging.

The question arises whether these reasons for visiting forests and woods are the same across all age groups. From Table 43, the trend suggests that an individual's reasons for choosing to visit a forest does alter significantly with age. Peace and quiet/environment dominates in all the bands, of course, because it accounts for the largest overall percentage. However, if we look at the breakdown of age participation for each group, we see that the peace and quiet/environment and the feelings groups are supplied more by the young, i.e. under 30 years group, the 'family' reasons by the 30-40 year group and the 'wildlife' by the over 40s. The 'activities' reasons are evenly distributed, matching the age distribution almost exactly.

When the reasons for choosing a forest/wood

Table 43 – Reasons for visits by age group

Age	%	First reason for choosing forest/ woods					
		Activities	Peace and quiet/ environment	Wildlife	Family	Feelings	Other
		%	%	%	%	%	%
Under 21	(10)	10	8	10	4	7	14
21–30	(22)	20	26	11	21	34	27
31–40	(22)	23	21	19	43	17	17
41–50	(14)	12	15	22	20	10	7
51–60	(13)	15	14	12	4	20	10
Over 60	(19)	20	16	26	8	12	25
Column total	(100)	100	100	100	100	100	100

χ^2 = 54.54
df = 25
p = <.001

day out are cross tabulated by frequency, it is clear that the inconsequential ‘other’ reason is given mainly (91%) by those who actually visit only infrequently or never. The only other points of note are that reasons associated with wildlife and, to a lesser extent, feelings, are more likely to be supplied by regular users than

by infrequent ones. Also that those who never visit (35%) are most likely to perceive the forest as a family/social outing. The reasons given by those who visited en route, as part of another trip, are very similar and that table is not, therefore, reproduced here.

Table 44 – Frequency of visits by reasons for choosing forests/woods

Frequency of visits	%	First reason for choosing forest/ woods					
		Activities	Peace and quiet/ environment	Wildlife	Family	Feelings	Other
		%	%	%	%	%	%
Never	(35)	37	29	36	43	25	52
Infrequently	(41)	38	48	29	35	46	39
Monthly	(12)	9	14	19	16	12	7
Weekly	(8)	10	6	14	6	15	2
Daily	(3)	6	3	2	0	2	0
Column total	(100)	100	100	100	100	100	100

N = 786
 χ^2 = 60.663
df = 25
p = <.000

N.B. ‘Once’ and ‘occasionally’ are combined to form ‘infrequently’.

24. Seasonal preferences

There are marked variations in the visits made to forests across seasons and people seem highly attuned to these. Preferences for different seasons of the year for forest trips are explored in this chapter, together with the reasons for choosing them. The roles of social class, environmental group membership, age, sex, frequency of visits and activity engaged in on most recent trip are considered. We first asked respondents to nominate their favourite season. Autumn was, interestingly, most popular (44%), followed by summer (26%), spring (24%) and winter (6%).

We next asked for reasons in an open-ended format, i.e. ‘What do you particularly enjoy about forests at this time?’ Table 45 shows that spring received the highest percentages for plant and animals coming alive, fresh air and pine smells. Summer was the most favourable time for the weather, walking, the frequent wildlife, the plants in full bloom, children playing, and the season with the most to see and do. Autumn was noted for the attraction of the colours of the leaves and the leaves falling, as

well as being considered the most quiet and peaceful time. Lastly, and perhaps unexpectedly, winter received the highest support for scenic qualities, despite its low popularity overall. In sum, it appears that summer is the best season for the most reasons; but it is autumn which attracts most people, by a wide margin.

This strong preference for the autumn is an unexpected result and does not accord with the Forestry Commission’s statistical data on visits. Accordingly, it is desirable to look more closely at who prefers the different seasons.

It will be seen from Table 46 that the strong preference for autumn is expressed more by the regular users than by those who never visit; in particular, 56% of the daily visitors (who are probably the most discriminating because they are equally exposed to all seasons) prefer the autumn. Summer shows the converse of this, with those who never visit preferring it most strongly. Spring, like autumn, is preferred by the more regular visitors. Winter receives little support.

Table 45 – Preferences for season and reasons why

Reasons for preferences	Preferred season				Row means n = 778 %
	Spring n = 186 %	Summer n = 206 %	Autumn n = 343 %	Winter n = 43 %	
Colours, leaves falling	7	4	88	1	332
Weather	9	82	8	2	116
Scenic qualities (e.g. snow on trees)	9	12	12	67	42
Plants/animal life	87	10	3	–	110
Frequent wildlife	21	58	17	4	24
Quiet and peaceful time	22	22	37	19	27
Fresh air/pine smell	46	25	21	7	28
Plants in full bloom	16	68	16	–	25
Children playing	–	86	14	–	7
Good walking time	7	87	7	–	15
More to see, to do	19	43	29	10	21
Other	59	28	6	6	32
Overall % of sample	24	26	44	6	100

X² = 1141.15
df = 44
p = <.001

Table 46 – Preferred season by frequency of visits

Preferred season	Frequency of visits						Row means
	Never %	Once %	Occasionally %	Most months %	Most weeks %	Most days %	
Spring	21.3	23.1	22.9	30.9	29.5	24.0	23.9
Summer	34.2	24.6	24.8	17.5	23.0	8.0	26.5
Autumn	40.4	47.7	44.6	48.5	41.0	56.0	44.0
Winter	4.0	3.1	7.8	3.1	6.6	12.0	5.5
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 37.12$
 $df = 20$
 $p = <.011$

Table 47 – Preferred season by social class

Preferred season	Social class				Row means
	AB %	C1 %	C2 %	DE %	
Spring	25.6	24.0	21.3	19.6	22.5
Summer	16.8	23.6	33.9	33.3	27.4
Autumn	53.6	48.0	39.3	38.1	44.3
Winter	4.0	4.4	5.5	9.0	5.8
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 24.08$
 $df = 9$
 $p = <.004$

A significant association was also found with social class (Table 47). Autumn is the first choice of all four categories, but it is the AB group and, to a lesser extent, the C1 group, that shows the very strong preference, at the expense of summer which is relatively less attractive for them. This may go some of the way to explain the deviation from Forestry Commission data, because the AB group is small and its preference would not show up very strongly in visitor data. However, when combined with C1, it is probably half the population and this should show up.

Spring is given as a preference by more ABs (26%) than others and although the differences

are very small, it declines consistently towards the DE (20%). Winter receives relatively little support but it goes in the opposite direction, with the DE most likely to visit the forests at this time of the year.

Environmental group members reflect the social class data to some extent, but some of the differences are much more pronounced (Table 48). For example, there is a steep and positive relationship between environmentalism and a preference for the spring. Also, those who belong to just one environmental group make a substantial contribution to the expressed preference for autumn.

Table 48 – Preferred season by environmental group membership

Preferred season	Environmental group membership				Row means %
	None %	One %	Two %	More than two %	
Spring	23.2	21.3	32.1	40.9	23.8
Summer	28.5	15.7	28.6	13.6	26.6
Autumn	42.1	59.6	39.3	40.9	44.0
Winter	6.2	3.4	–	4.5	5.6
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 18.48$
 $df = 9$
 $p = <.030$

Table 49 – Preferred season by age

Preferred season	Age						Row means %
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
Spring	18.9	20.2	19.5	25.0	25.7	33.1	23.7
Summer	44.6	29.8	29.0	20.5	20.8	18.7	26.5
Autumn	28.4	39.3	47.9	50.9	48.5	46.0	44.2
Winter	8.1	10.7	3.6	3.6	5.0	2.2	5.6
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 46.04$
 $df = 15$
 $p = <.000$

Table 50 – Preferred season by reasons for choosing forests/woods

Preferred season	Reasons for choosing forests/ woods						Row means %
	Activities %	Peace and quiet/environment %	Nature %	Family %	Feelings %	Others %	
Spring	22.9	25.2	29.9	11.8	26.8	21.7	24.1
Summer	29.3	21.4	20.6	45.1	31.7	29.3	26.3
Autumn	43.1	47.2	46.7	41.2	31.7	41.3	44.2
Winter	4.8	6.2	2.8	2.0	9.8	7.6	5.5
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 25.29$
 $df = 15$
 $p = <.046$

Age is also a factor (Table 49). A preference for spring as the best season to visit forests and woods is low among the young but increases steadily with age. As mentioned already, winter is a generally unpopular season but support (presumably for special activities) is shown at about 10% in the under thirties and thereafter declines steadily. Summer is the most popular season for the very young (under 21) but remains level otherwise. Autumn is the most popular season for all age groups except the under 21, but it is apparent that preference increases with age, reaching a peak in the 41-50 years band and dipping only slightly thereafter.

This suggests also that preferences for autumn may be expressed by those who no longer have the responsibility for young families and who can enjoy walking and more contemplative

experiences.

This is exactly confirmed from the cross tabulation with the reasons why people might choose to go to a forest or wood compared with other trips (Question 2). Table 50 shows that walking activities, followed by peace and quiet/environment and then nature are among the main reasons for choosing forest outings in autumn, while family outings and healthy exercise occur less often. Summer is almost the converse. The reasons given for spring are about equally divided, except that this is emphatically not the season for family outings.

Finally, one further factor which governs the overall preference for autumn is clearly the sex of the respondents (Table 51). Women show a significant preference for autumn, mainly at the expense of summer.

Table 51 – Preferred season by sex

Preferred season	Sex		Row means %
	Male %	Female %	
Spring	21.4	25.5	23.6
Summer	31.9	21.2	26.2
Autumn	39.0	49.7	44.7
Winter	7.7	3.6	5.5
Column total	100.0	100.0	100.0

$\chi^2 = 19.94$
 $df = 3$
 $p = <.000$

25. The public’s interest in forest management and forestry practice

Next, we turn to the public’s views with respect to forest design and management. Questions of interest include how woods and forests should be used; where the funding for forests should be obtained; whether more forests are wanted and, if so, by whom; and what type of trees these forests should have. We ask whether lay persons should be invited to share in the planning and explore views on alternative methods of funding. This section concludes with ideas on what the public feel forest management can do or provide to make forest visits more enjoyable. The number of respondents is based on the sub sample (n=446) that replied ‘yes’ they wanted more forests in their local area.

25.1 The purpose of forests and the desire for new forests

In Question 13, respondents were shown a card with four main ways in which forests and woods are used and asked to rank them in order of importance. The results are shown in Table 52.

The majority believe timber production to be the least important use of forests. This is a stark measure of the difference between the attitudes of the public and those of forestry managers. Nature conservation is considered by the public to be by far the most important use, followed by scenic attraction and, thirdly, recreation. It would appear that the public perceives the forests as part of their environmental heritage and, as such, considers that they must be conserved as distinct from being developed, used

Table 52 – Importance of alternative purposes of forests

Alternative purposes	Importance				Row means %
	1st choice %	2nd choice %	3rd choice %	4th choice %	
Nature conservation	63	25	10	2	100
Scenic beauty	24	47	19	10	100
Timber production	6	10	22	62	100
Recreation	7	17	50	26	100
Column total	100	100	100	100	100

Table 53 – Frequency of visits by want more local forests

Frequency of visits	Want more forests		
	Yes %	No %	Don't know %
Never	32	35	56
Once or occasionally	40	46	32
Monthly	15	9	7
Weekly	9	7	4
Daily	4	3	1
Column total	100	100	100

$\chi^2 = 25.31$
 $df = 8$
 $p = <.001$

or removed. Furthermore, the scenic beauty of forests is a basic attribute and it must be presumed that the enjoyment of this is a pervasive form of recreation. More explicit or organised forms of recreation (e.g. fishing, boating, orienteering, camping, horse riding) in forests are not particularly salient for our respondents in relative terms. It seems possible that widespread walking and dog walking are not self-consciously recognised as 'recreation'; this would partly explain the low priority of this category of use. Not surprisingly, in view of this priority ordering, when respondents were asked if they would welcome more forests in their local area, 53% said 'yes', 38% said 'no' and the remainder (9%) 'don't know'.

Table 53 examines whether those individuals who visit forests more often are more likely to want greater numbers of local forests. There is a clear and statistically significant relationship even among those who never or rarely visit

forests and, among the more frequent visitors, the positive vote becomes even stronger.

It is important to ask which section of the population is most strongly supportive of the proposal for more local forests. Table 54 shows the relationship with age. The results are quite consistent for those over 21.

The strongest support is from the 21-30 years age group with a steady decline thereafter. It may be argued that those who see the potential for special activities and for family social outings are in the younger age bands. However, an exception to the consistent trend is among the very young, i.e. under 21. This may be accounted for in the same way, perhaps by adding that fewer people in this group possess the car that is so often a basic requirement for the enjoyment of forest visits; also, few are householders with a stake in the locality.

Table 54 – Want more local forests by age

Want more forests	Age						Row means
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	%
Yes	54.8	64.8	64.3	59.4	52.6	48.5	58.4
No	45.2	35.2	35.7	40.6	47.4	47.4	51.5
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 12.08$
 $df = 5$
 $p = <.034$

Table 55 – Want more local forests by social class

Want more forests	Social class				Row means
	AB %	C1 %	C2 %	DE %	%
Yes	73.1	62.2	57.9	49.4	59.9
No	26.9	37.8	42.1	50.6	40.1
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 17.38$
 $df = 3$
 $p = <.001$

Table 56 – Want more local forests by how forests compare with other trips

Want more forests	How forests compare with other trips						Row means
	Activities %	Environment %	Nature %	Feelings %	Family %	Others %	%
Yes	54.8	64.8	64.3	59.4	52.6	48.5	58.4
No	45.2	35.2	35.7	40.6	47.4	47.4	51.5
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 14.15$
 $df = 5$
 $p = <.015$

Social class shows the expected relationship, those wanting more local forests comprising nearly three-quarters of the AB group, declining to only half in the DE group. This reflects the relationship between frequency of use and social class (Table 13), but it must be pointed out again that the absolute numbers in the

population are far smaller in the AB social class band, so aggregate support would be lower. However, any shortfall in numerical strength is likely to be balanced by greater political power.

If we ask what kind of activities people have in mind when pressing for more local forests, we

Table 57 – Want more local forests by activity last trip

Want more forests	Activity last trip							
	Walk dog %	Walk %	Nature %	View %	Flora %	Games %	Trail %	Picnic %
Yes	58	59	59	61	65	67	68	74
No	42	41	41	39	35	33	32	26
Column total	100	100	100	100	100	100	100	100

$N = 780$
 $\chi^2 = 16.101$
 $df = 7$
 $p = <.05$

N.B. Respondents could name more than one activity: mean number = 1.437.

can usefully refer to two questions. In the first, Question 2, we find how the respondents think that forests and woods compare with other places for a day out. There are differences in the desire for more forests depending on people's views on the distinctive quality of forest trips. The least supportive are those who mention activities, i.e. walking, dog walking and variety of outings. These are mainly engaged in by the older groups. The same is true, to a lesser extent, of 'environment/ peace and quiet' and 'nature'. Next comes 'feelings', defined as healthy, relaxing and getaway, then finally and most supportive, those who consider the family outing, picnicking and children's play, as the most distinctive feature of forests and woods.

This interpretation is fully supported by the second source of evidence which asked for actual activities on the last trip, Question 5e. When cross-tabulated with 'want more forests', the order is almost identical with the previous analysis, despite its relative independence. That is, least support from walkers, through nature/environment up to the strongest

support from those who played games, followed nature trails or had a picnic on their last trip (Table 57).

To summarise, new local forests do not appeal so much to the middle class or to late middle age people who enjoy walking, peace and quiet and wildlife, but to the younger family people who probably see them as a more public park like facility for family recreation. It may be speculated that the former group are less supportive because they are averse to large scale environmental change, rather than being averse to forests.

25.2 Preferences for different tree forms

If more forests are nonetheless acceptable to a majority, the question arises of the public's preference for different tree forms. This is an issue that has provoked controversy throughout the post-war decades. However, its 'social representation' has generally been based on media reports and the views of environmentalist groups.

Table 58 – Preference for tree forms in local forests

Tree type preferred	%
Any kind of trees	37
Mixture of the two (broadleaved / conifers)	33
Broadleaved	21
Conifers	5
Don't know	4

Table 59 – Preferred type of trees by social class

Tree type preferred	Social class				Row means
	AB %	C1 %	C2 %	DE %	
Broadleaved	35.2	20.4	18.8	13.2	21.5
Coniferous	2.3	3.9	10.4	6.6	5.6
Any kind or mixture	62.5	75.7	70.8	80.2	72.8
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 19.82$
 $df = 6$
 $p = <.003$

Table 60 – Preferred type of trees by environmental group membership

Tree type preferred	Environmental group membership				Row means
	None %	One %	Two %	More than two %	
Broadleaved	18.9	28.8	20.0	53.8	21.2
Coniferous	5.8	5.1	5.0	-	5.5
Any kind or mixture	75.3	66.1	75.0	46.2	73.2
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 11.69$
 $df = 6$
 $p = <0.07$

It will be seen from Table 58 that there is very little positive response for conifers (5%), and a strong minority, one fifth of the sample, express a preference for broadleaved trees. However, the majority (70%) of individuals would like either 'any kind of trees' or 'a mixture of the two'. If the widely-alleged public aversion to coniferous plantation were valid, a stronger negative vote against this form might have been expected. It appears that mixed planting at least is now quite widely accepted. It will be seen later that this finding gains further support from the analysis of preferences for landscape photographs.

Meanwhile, it seems desirable to look more closely at those who do strongly favour broadleaved species. Table 59 clearly reveals one of the main determinants; social class differences are considerable, with AB (professional and managerial) strongly favouring the broadleaved

form with a progressive reduction in this preference through to DE (manual).

A preference for broadleaved forests is closely reflected in the membership of environmental groups (Table 60). It is well known that environmentalism is related to social class and is strongest in the AB grouping, so it is therefore difficult to identify which is the main cause.

This finding raises important issues of policy. In sheer numerical terms, those preferring broadleaved trees comprise 35% of the ABs, i.e. what is already a minority of the population, as was seen earlier in Table 13. On the other hand, the ABs are the most frequent users in percentage terms, though not in absolute terms. Table 61 shows the preference for trees cross-tabulated by frequency of visits, where it will be seen that there is a very strong preference for broadleaved species among existing frequent visitors.

Table 61 – Preferred type of trees by frequency of visits

Tree type preferred	Frequency of visits						Row means
	Never %	Once %	Occasionally %	Most months %	Most weeks %	Most days %	
Broadleaved	14.4	11.4	23.6	20.6	31.7	56.3	21.3
Coniferous	1.5	11.4	6.9	10.3	2.4	–	5.5
Any kind or mixture	84.1	77.1	69.4	69.1	65.9	43.8	73.2
Column total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 32.02$
 $df = 10$
 $p = <.000$

Table 62 – Preferred type of trees by preferred funding for local forests

Tree type preferred	Preferred funding for local forests			Row means
	Community %	Users %	Timber sales %	
Broadleaved	26.5	11.9	14.9	20.6
Coniferous	4.7	3.6	4.3	4.3
Any kind or mixture	68.8	84.5	80.9	75.1
Column total	100.0	100.0	100.0	100.0

$\chi^2 = 10.91$
 $df = 4$
 $p = <.028$

One last point before leaving tree form. Question 12b was asked in the specific context of the proposal to establish new forests *locally*. That is, ‘Would you like there to be more forests in your local area?’ If yes, ‘What kinds of trees would you prefer them to have?’

This would be expected to yield a conservative response, so the acceptance of conifers should generalise safely to more remote environments.

Also, it will be noted from Table 62 that those preferring broadleaved trees favour community funding for the new forestry developments, while those who consider the users should pay or that forests should be financed through timber sales are, with unexpected pragmatism, also more accepting of ‘any kind of mixture’.

Overall, it has to be said that there is a surprising mandate for either ‘any kind of trees’

Table 63 – Funding of local forests

Source of funds	%
Community (through taxes, rates, community charge)	51
Sales of timber	21
Users (charging actual visitors)	19
Other	9

or ‘a mixture’, but the AB group, who are more likely to belong to environmental groups and to visit the forests often, express a clear preference for broadleaved species.

25.3 The funding of new forests

Question 12c raised the question of the financial aspects of management and asked who should provide funds for any new developments. The results are shown in Table 63.

Approximately half of the sample studied felt that funding for forests should be community based while the remainder believe they should be self-supporting; about half of these (21%) thought this should be by means of timber sales and half (19%) by user charges. This overall division perhaps reflects the main left/right political divide, although the percentage in

favour of user charges as a possibly right wing expression is higher than expected and might provide some encouragement for advocates of this approach.

If we look more closely at these choices by comparing them with the frequency of visits data (Table 64), we see that, predictably perhaps, those who never or rarely use the forests feel that they should be funded by the users! The frequent visitors feel that the forests should be a shared community responsibility, and those who thought funding should depend on timber sales are spread evenly across the user range.

Not surprisingly again, those in favour of funding through timber sales are more likely to have chosen (in Question 13) timber production as the most important purpose of forestry (Table 65). Again, confirming the previous

Table 64 – Preferred funding for local forests by frequency of visits

Preferred funding for local forests	Frequency of visits						Row means
	Never	Once	Occasionally	Most months	Most weeks	Most days	
	%	%	%	%	%	%	%
Community – by tax	45	41	61	75	46	64	56
Users	29	31	16	9	27	7	21
Sales of timber	26	28	23	16	27	29	23
Column total	100	100	100	100	100	100	100

X² = 25.69
df = 10
p = <.004

Table 65 – Preferred funding for local forests by alternative purposes of forests

Preferred funding for local forests	Alternative purposes of forests			
	Timber	Conservation	Scenic beauty	Recreation
	%	%	%	%
Community – by tax	36	62	40	68
Users	14	19	30	16
Sales of timber	50	19	29	16
Column total	100	100	100	100

X² = 25.656
df = 6
p = <.001

analysis of how forests compare with other trips, we see that recreation, although only seen as important by a small number, is associated with a belief in community funding. So also, to a lesser extent, is conservation seen to be a community responsibility. Those who see 'beauty' as important are fairly equally divided on preferred methods of funding.

Question 12d asked: 'Do you think that ordinary people would wish to share in the planning and care of these forests, given the opportunity?' The large majority of respondents (69%) replied that lay people should be involved in forest management and care. Only 25% said 'no' and 6% were classified as 'don't know'. This gains added significance when compared with the previous question, where only 51% were in favour of community financial management. However, it should be noted that there may well be an element of 'social desirability bias' in the answer to the question on social participation. Actual involvement may be expected to manifest at a lower, though still significant, level.

25.4 Forest management on the ground

We turn next to more detailed aspects of forest recreation management. Question 7 asked 'What can forest managements do or provide that would make visits more enjoyable?' It should be noted that this was not asked in the context of the possible provision of more local forests, but at an earlier stage in the interview, where it was introduced with the phrase, 'Thinking about forests in general . . .'. The first choice was completely open ended, but thereafter a full listing was presented for the second and third choices. The results are shown in Table 66.

There is a danger in this kind of question that the choices, in being imposed, will be restrictive. Hence, the inclusion of an open-ended first choice. It will be noted, however, that this generated relatively few suggestions beyond those supplied. (10% 'other' compared with 1%.) One other difference should be mentioned. The choice of 'no facilities at all' receives 9% in the open ended form, but the fact that its 'vote'

Table 66 – What forest management can do or provide

Facilities that forest management could provide	Rank order	Total choosing %	First choice %	Second choice %	Third choice %
No facilities at all	(7)	13	9	3	1
Nature trails	(3)	29	11	12	6
Visitor centres	(8)	13	3	5	5
Information leaflets	(9)	13	2	6	5
Well-marked paths	(2)	33	10	14	9
Signposts	(6)	15	3	5	7
Easier access	(17)	6	2	2	2
Rubbish bins	(4)	23	5	10	8
Play areas for children	(10)	13	3	4	6
Picnic tables	(5)	21	8	7	6
Disabled facilities	(14)	9	1	4	4
Shops/cafeteria	(15)	8	2	2	4
Car parks	(11)	12	2	5	5
Toilets	(1)	34	10	11	13
Shelter from weather	(13)	12	1	4	7
Warden or ranger	(16)	7	1	1	5
Other	(12)	12	10	1	1
Don't know		27	17	4	6
Total		300	100	100	100

N.B. The rank order is based on the unweighted sum of three choices.

drops to 3% and 1% in the second and third choices (where it was ‘supplied’ by the interviewer) suggests that some interviewers may have coded some first choices into this category when the respondents simply could not suggest any facilities that would add to their enjoyment of the forest. Apart from these differences, there is a quite close correspondence between the first and second choices.

Hence, the most meaningful data are probably the total percentage opting for each facility summed over three choices; they have been rank ordered by this criterion. (When the percentages were weighted 3:2:1 to give greater influence to the first, open ended, nomination there was no change greater than one position in the rank orders and these data are not therefore presented.)

There is no straightforward way of assembling the facilities into congruent groups, but it is noticeable that three choices relevant to walking as a recreation are highly salient. These are well-marked paths (2), nature trails (3) and signposts (6). This group of facilities should obviously be taken very seriously, especially as it is concordant with the unexpectedly strong emphasis on worry about being lost, vulnerability and fear of trespassing that showed up in the earlier analysis (Section 22).

The other salient grouping is one related to the family outing factor, again one that emerged in an earlier analysis. This is a more obviously ‘hardware’ grouping that includes toilets (1), rubbish bins (4) and picnic tables (5). Although there is undoubtedly an important minority for whom such facilities would degrade the forest experience, there is clearly a majority who would welcome them.

26. Aesthetic aspects of forest management

Finally, we turn to the aesthetic aspects of forestry management. What are the public’s preferences for different attributes of landscape and, more specifically, which of a set of landscape photographs do they prefer, and for what reasons?

The respondents were asked (Question 11a), ‘How do you think forests should appear in the landscape?’ and invited to assess nine attributes, using a five point scale. In addition, they were asked, in Question 11b, ‘How do you think that trees in the forests should be managed?’ and a further three attributes were presented in the same way. The data were combined for the purposes of analysis and the results are shown in Table 67. Mean scores and a rank order have been included.

Table 67 – Preferences for forest landscape attributes

Forest landscape attributes	Preferences					Mean	Rank
	Disagree strongly 1 %	Disagree 2 %	No preference 3 %	Agree 4 %	Agree strongly 5		
<i>Forests should:</i>							
Look inviting	0	2	8	59	31	4.19	3
Blend into landscape	1	4	9	53	33	4.14	4
Have a lot of variety	1	4	14	54	27	4.04	5
Have trees spaced out from each other	3	22	24	37	14	3.35	9
Be colourful and beautiful	1	1	7	52	39	4.28	2
Be a defined feature in the landscape	3	22	22	41	12	3.37	8
Be on a large scale	3	26	29	31	11	3.20	10
Look natural	0	1	5	51	43	4.38	1
Have well-marked paths or trails	1	5	11	42	41	4.19	4
Be casual, irregularly-spaced	2	7	14	54	24	3.93	6
Be in orderly rows	35	43	16	6	1	1.94	11
Be allowed to grow wild	4	18	14	39	25	3.63	7

Table 68 – How people think forests should appear: Rotated Factor Matrix

	Factor 1 <i>Diversity</i>	Factor 2 <i>Wilderness</i>	Factor 3 <i>Visual prominence</i>
Natural	.569	.384	
Inviting	.632		
Blend in	.608		
Mixed/ variety	.620		
Add colour	.698		
Good paths	.491		
Space trees	.580	-.316	
Defined feature			.688
Large scale			.780
Orderly rows		-.776	
Grow wild		.641	
Casual	.306	.632	

It will be seen that our respondents consider, in order of importance, that forests should look natural, be colourful and beautiful, look inviting, blend into the landscape and have a lot of variety. The variation in support for these is small and non-significant.

At the opposite end of the scale, there is strong opposition to trees planted in orderly rows, large scale forests and trees spaced out from each other. This last attribute, ranked 9, suggests that the public is not particularly averse to close planting. It will be recalled that density is one of the qualities perceived to distinguish forests from woods and it may be speculated that, so far as the public is concerned, trees do not constitute a forest unless they are planted fairly densely. This hypothesis gains some support from the fact that the two attributes ‘casual, irregularly spaced’ and ‘allowed to grow wild’ occupy unexpectedly low positions, at ranks 6 and 7 respectively, more than halfway down the order.

The only attribute not so far mentioned is ‘a defined feature on the landscape’ which occupies rank 8 (i.e. it is emphatically rejected). This is, of course, the converse of looking natural and blending into the landscape, but it is not self evident that ordinary members of the public should be attuned to and accord with this central dictum of landscape architecture and it is interesting in this sense.

A factor analysis with varimax rotation was carried out on Questions 11a and 11b which asked people how they think forests should appear. The rotated factor matrix is shown in

Table 68 and Figure 6.

The dominant factor, accounting for 23.8% of the variance, is as shown on the horizontal axis in Figure 6. It consists of no less than seven qualities of landscape that are strongly loaded at the positive end of the factor, which is best characterised as *diversity*. Unfortunately, there were no descriptors included in our list that might have been positioned at the negative end of this factor, which is clearly sameness or monotony. It is interesting that ‘natural’ should belong mainly with this factor, although it also contributes, to a lesser extent, to Factor 2. This means that being ‘natural’ is perceived to imply diversity of colour, age and species more than a state of wildness.

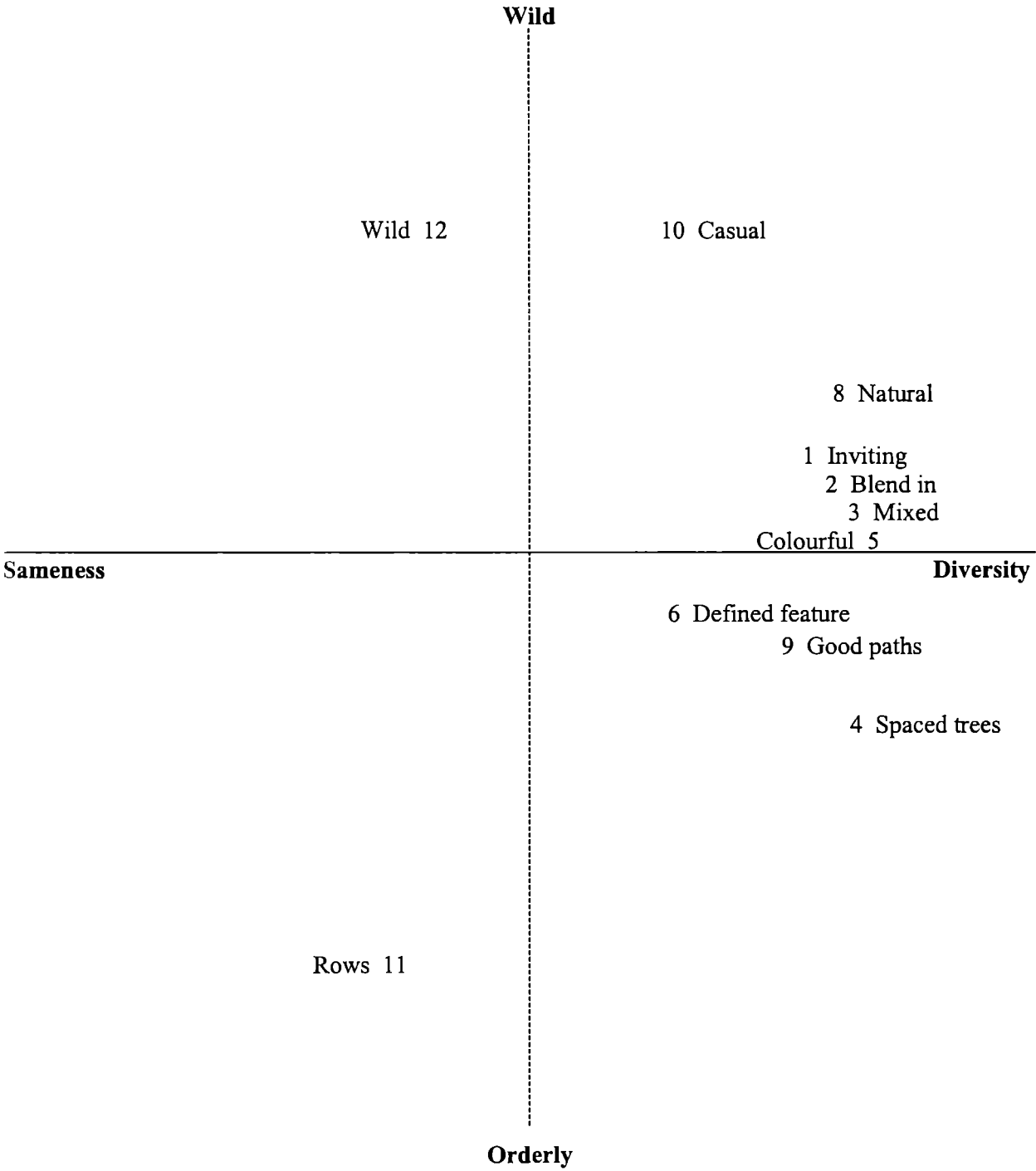
Wildness is clearly the best way to label Factor 2 and, in this case, there is a salient negative item, i.e. ‘orderly rows’ implying ‘man-managed’, in contrast to wild. Another obvious contribution is ‘casual’. This factor accounts for 14.1% of the variance. It will be seen from Table 67 that its positive pole receives moderate support, but its negative, ‘orderly rows’ is very firmly rejected by the public.

Finally, there is a third factor composed of ‘large scale’ and ‘defined feature’ which is not shown in diagrammatic form but may be described as a factor of *visual prominence*. It accounts for a further 10.5% of the variance. The question arises whether this factor, which could be said to characterise some of the early plantation landscaping, is perceived in positive or negative terms by the public. It will be recalled that the question asks for ratings of ‘how forests should

Figure 6 How people think forests should appear

The co-ordinates of the first two factors are shown in Fig. 6

Horizontal Factor 1/Vertical Factor 2



appear in the landscape'. While they receive less support than all other features, the two attributes that make up this factor receive more 'agree' and 'agree strongly' endorsements than the converse. It appears that *visual prominence* is not necessarily a negative quality for a forest - although it receives relatively low support as a positive one.

The factor scores were derived from these three landscape preference factors and cross tabulated with a number of other variables. Two significant relationships with the main factor *diversity* were identified. The first shows a clear and linear relationship with membership of environmental groups. It would appear that the environmental attitude does include quite salient views on how the landscape ought to

look (Table 69).

The second relationship is with preferred season (Table 70). In this case there is no obvious way of ordering seasons in sequence and so we cannot argue in terms of linearity but only in terms of differences between each season and the others. Nonetheless, it is convenient to consider them in the order in which they are preferred by those who also express a strong preference for '*diversity*' in the landscape. Spring comes first, followed by summer and autumn (about equal) and then by winter. The differences, though significant overall, are relatively small. They have already been discussed in the earlier section on preferred season (Chapter 24).

Table 69 – Factor score 'diversity' by environmental group membership

Factor score 'diversity'	Environmental group membership				Row means
	None %	One %	Two %	More than two %	
16 to 20	6.7	14.6	–	–	7.5
21 to 25	38.6	41.5	14.3	11.1	37.5
26 to 20	54.7	43.9	85.7	88.9	55.0
Column total	100.0	100.0	100.0	100.0	100.0

$\chi^2 = 11.08$
 $df = 6$
 $p = <.086$

Table 70 – Preferred season by factor score 'diversity'

Preferred season	Factor score 'diversity'			Row means
	16 to 20 %	21 to 25 %	26 to 30 %	
Spring	9.5	28.2	26.2	25.6
Summer	28.6	25.2	27.5	26.7
Autumn	42.9	39.8	44.3	42.5
Winter	19.0	6.8	2.0	5.1
Column total	100.0	100.0	100.0	100.0

$\chi^2 = 14.15$
 $df = 6$
 $p = <.028$

Table 71 – Frequency of en route visits by who accompanied

Frequency of en route visits	Who accompanied				
	Spouse/ partner %	Family and children %	Friends %	Alone %	Club/group %
Infrequently	85	86	78	57	84
Monthly	12	10	17	19	8
Weekly	3	4	5	13	8
Daily	0	0	0	11	0

$\chi^2 = 61.30$
 $df = 12$
 $p = <.001$

Forest visits en route to another destination are much less frequent overall (Table 71). In terms of who accompanied the visitor, the general pattern is similar to the specific visits, except that there is an increase in the number of (on average) monthly en route visits made alone or with friends.

26.1 Types of activity pursued and perceptions of the forest - The 'Forest Enthusiast' and other sets

In Question 5e respondents were asked to name, from a list of 17 items, the activity or activities they pursued on their last visit to the forest. The low frequency items were combined into groups, reducing the number of activities to 10. These are listed, with their frequencies, in Table 72.

Each of these activities was correlated with the

three sets of factor scores derived from responses to what the forests are perceived to offer the visitor, what feelings they evoke, and how the landscape should preferably appear.

The factors derived from 'What the forest may offer the visitor' will be considered first, i.e. *wilderness*, *family/social outing*, *walking* and *walking with dog*. Neither sports nor relaxing are significantly correlated with any of the four factors. However, those who walked on their last visit have a high score on *wilderness*; viewing scenery (-.196), watching birds and animals (-.134) and looking at trees and flowers (-.099) are also significantly related to *wilderness*. The same activities; viewing scenery (-.116), watching birds and animals (-.190) and looking at trees and flowers (-.151) are all correlated with the *walking* factor. If the respondent included 'walking' as an activity on

Table 72 – Frequencies of different activities pursued on last trip

Activity	%
Walk	62
Viewing scenery	43
Looking at trees and flowers	36
Watching birds and animals	35
Picnic	22
Walking the dog	20
Following a nature trail	13
Playing games	12
Relaxing (resting/sleeping; courting; reading)	12
Sports (horse riding; orienteering; fishing; boating; camping and cycling)	9

Table 73 – Forest enthusiasts’ activities by how often they visit forests

Preferred season	How often they visit forests (previous year)						Row means
	Never %	Once %	Occasionally %	Most months %	Most weeks %	Most days %	
0/1/2	51.3	5.8	25.0	8.4	6.6	2.9	64.3
3	4.0	12.0	49.6	20.8	8.8	4.8	15.7
4	8.1	13.1	46.3	18.1	11.9	2.5	20.1
Column total	35.2	8.3	33.1	12.3	8.0	16.0	100.0

N = 798
X² = 168.59
df = 10
p = <.000

N.B. ‘How often . . . ?’ was assessed on the previous year but ‘activities’ relate to the last visit made. Hence, some activities are recorded for those who visited ‘never’.

Table 74 – Forest Enthusiasts’ activities by preferred season to go

Forest Enthusiasts’ activities	How often they visit forests				Row means
	Spring %	Summer %	Autumn %	Winter %	
0/1/2	23.8	30.7	39.3	6.0	64.1
3	26.0	20.3	48.8	4.9	15.8
4	22.3	17.8	55.4	4.5	20.2
Column total	23.9	26.4	44.0	5.5	100.0

the last trip (-.124) and ‘walking the dog’ (.379), there is the expected relationship with the *dog walk* factor. Predictably, those who went on picnics have a higher score on the *outing* factor (-.154) as did also those who played games.

The activities engaged in on the last forest visit were next compared with those factors based on ‘Feelings while in the forest’. None of the activities shows any association with the *vulnerable* factor, but those who walked, viewed scenery, watched birds and animals and looked at trees and flowers were all significantly low on the related factor of *claustrophobia*. Exactly the same activities are associated with the factor *free to explore* and with *uplift*.

In the factors concerned with ‘visual preferences for landscape’, the walkers and those who were viewing scenery on their last trip again show significant preferences for one of the factors, i.e. the *wilderness* factor.

These findings, considered together, indicate a distinctive group of forest users; to recapitulate, those who walked, viewed scenery and showed interest in flora and in fauna have significantly elevated scores on the factor scores of *wilderness* and *walking* derived from ‘what the forest mainly offers the visitor’, on *wilderness* as a ‘visual preference’, and score positively on the factors of *free to explore* and *uplift* and negatively on *claustrophobia* derived from the ‘feelings when in the forest’ items.

This group, which we may conveniently name ‘Forest Enthusiasts’, may be considered to be a dedicated set of forest users. For the purpose of further analysis, a Forest Enthusiast was identified as a person who had engaged in at least three of the four activities: walking, scenery, flora or fauna during their last forest visit. This comprised 20.1% (4 activities) and a further 15.7% (3 activities).

The character of the Forest Enthusiasts is confirmed from Table 73, where it will be seen that they set out specially to visit forests considerably more often than others and it was found, in further confirmation, that they are not

more likely to have visited a forest en passant or as part of another trip ($X^2 = 15.2$; $df = 10$; $p = < .124$). The length of their last special visit was not above the average ($X^2 = 12.34$; $df = 10$; $p = < .263$). As to season of visit, they prefer the autumn and this is significantly different from the remainder of the sample (Table 74). However, very few are counted among those forest visitors who stay near their base and there is a positive linear relationship between being a Forest Enthusiast and the distance the last trip extended into the forest (Table 75).

Having said this, it is clear that the affiliation of Forest Enthusiasts is to the countryside

Table 75 – Forest Enthusiasts’ activities by length of walk into forest

Forest Enthusiasts’ activities	Length of walk into forest						Row means
	Stay near base %	Less than ½ mile %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
0/1/2	12.2	25.0	17.7	18.8	18.8	7.6	50.3
3	8.8	20.8	16.8	27.2	20.8	5.6	21.8
4	3.1	20.6	23.8	21.3	21.9	9.4	27.9
Column total	8.9	22.9	19.2	21.3	20.1	7.7	100.0

N₂ = 573
X² = 17.78
df = 10
p = <.059

Table 76 – Forest Enthusiasts’ activities by membership of environmental groups

Forest Enthusiasts’ activities	Environmental group membership				Row means
	None %	One %	Two %	More than two %	
0/1/2	87.1	8.6	3.1	1.2	64.4
3	79.2	14.4	3.2	3.2	15.7
4	68.4	17.7	6.3	7.6	19.9
Column total	82.1	11.3	3.8	2.8	100.0

N₂ = 794
X² = 36.83
df = 6
p = <.000

Table 77 – Forest Enthusiasts’ activities by been for drive in last four weeks

Forest Enthusiasts’ activities	Been for drive in last four weeks		Row means %
	No %	Yes %	
0/1/2	49.2	50.8	64.3
3	38.4	61.6	15.6
4	36.9	63.1	20.0
Column total	45.1	54.9	100.0

N₂ = 799
X² = 10.17
df = 2
p = <.006

Table 78 – Forest Enthusiasts’ activities by been for long walks in last four weeks

Forest Enthusiasts’ activities	Been for long walks in last four weeks		Row means %
	No %	Yes %	
0/1/2	73.3	26.7	64.3
3	57.6	42.4	15.6
4	50.0	50.0	20.0
Column total	66.2	33.8	100.0

N₂ = 799
X² = 34.63
df = 2
p = <.000

Table 79 – Forest Enthusiasts’ activities by visited historic house, zoos, etc., in last four weeks

Forest Enthusiasts’ activities	Visited historic house, zoos, etc., in last four weeks		Row means %
	No %	Yes %	
0/1/2	86.2	13.8	64.3
3	73.6	26.4	15.6
4	69.4	30.6	20.0
Column total	80.9	19.1	100.0

N₂ = 799
X² = 27.31
df = 2
p = <.000

Table 80 – Forest Enthusiasts’ activities by country visit in last four weeks

Forest Enthusiasts’ activities	Country visit in last four weeks		Row means %
	No %	Yes %	
0/1/2	88.5	11.5	64.3
3	88.0	12.0	15.6
4	79.4	20.6	20.0
Column total	86.6	13.4	100.0

N = 799
 $\chi^2 = 9.05$
df = 2
p = <.011

Table 81 – Forest Enthusiasts’ activities by whether forests and woods are different

Forest Enthusiasts’ activities	Are forests and woods different?		Row means %
	The same %	Different %	
0/1/2	46.6	53.4	63.8
3	62.6	37.4	16.0
4	69.0	31.0	20.2
Column total	53.7	46.3	100.0

N = 769
 $\chi^2 = 28.42$
df = 2
p = <.000

generally because they are also very much more likely than others to have been for a drive, outing or picnic (Table 77); to have been for a long walk (Table 78); to have visited a heritage site (Table 79) or to have pursued a particular interest or activity (Table 80), all in the countryside and all in the past four weeks.

Other congruent characteristics of this distinctive set of visitors is that they perceive a clear difference between forests and woods (Table 81).

Also, for the sub sample who were in favour of

more forests in their local area (N = 447), they were more likely to perceive ‘nature conservation’ (Table 82) and ‘scenic beauty’ (Table 83) as the most important uses for forests whereas ‘recreation’ ($\chi^2 = 4.09$; df = 6; p = < .664) and ‘timber’ ($\chi^2 = 4.64$; df = 6; p = < .590) received ratings much the same as other groups.

Finally, ‘Forest Enthusiasts’ activities are also distinguishable on some of the demographic variables. Firstly age (Table 84), where there is a steady increase in the likelihood of being a ‘Forest Enthusiast’ with age, despite a slight dip in the 51-60 years age group.

Table 82 – Forest Enthusiasts’ activities by nature conservation as most important forest use

Forest Enthusiasts’ activities	Nature conservation most important forest use				Row means %
	1 %	2 %	3 %	4 %	
0/1/2	57.3	29.6	10.2	2.9	61.4
3	70.0	21.4	7.1	1.4	15.7
4	74.5	16.7	8.8	0.0	22.9
Column total	63.2	25.3	9.4	2.0	100.0

N_i = 447
 χ^2 = 13.35
df = 6
p = <.038

Table 83 – Forest Enthusiasts’ activities by scenic beauty as most important forest use

Forest Enthusiasts’ activities	Scenic beauty most important forest use				Row means %
	1 %	2 %	3 %	4 %	
0/1/2	28.0	41.5	21.1	9.5	61.5
3	17.1	52.9	22.9	7.1	15.7
4	15.7	58.8	11.8	13.7	22.8
Column total	23.5	47.2	19.2	10.1	100.0

N_i = 447
 χ^2 = 17.52
df = 6
p = <.008

Table 84 – Forest Enthusiasts’ activities by age

Forest Enthusiasts’ activities	Age						Row means %
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
0/1/2	12.0	24.5	18.4	12.5	14.1	–	64.2
3	5.6	16.9	32.3	18.5	9.7	–	15.6
4	5.0	20.0	26.3	16.3	12.5	–	20.2
Column total	9.6	22.4	22.2	14.2	13.1	–	100.0

N_i = 794
 χ^2 = 26.73
df = 10
p = <.003

Table 85 – Forest Enthusiasts’ activities by age at completion of education

Forest Enthusiasts’ activities	End of education						Row means %
	Under 21 under %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 education %	
0/1/2	12.9	53.3	19.9	5.2	4.0	4.6	63.8
3	9.6	52.0	17.6	8.0	11.2	1.6	15.9
4	10.0	40.0	21.9	9.4	15.6	3.1	20.3
Column total	11.8	50.4	19.9	6.5	7.5	3.1	100.0

$N_2 = 788$
 $\chi^2 = 38.18$
 $df = 12$
 $p = <.000$

Table 86 – Forest Enthusiasts’ activities by occupation/social class

Forest Enthusiasts’ activities	Occupation/social class					Row means %
	A %	B %	C1 %	C2 %	D/E %	
0/1/2	1.4	11.0	32.1	25.6	14.8	63.8
3	3.3	17.2	32.0	27.9	9.0	15.8
4	5.7	21.0	36.3	16.6	8.3	20.4
Column total	2.6	14.0	32.9	24.1	12.6	100.0

$N_2 = 771$
 $\chi^2 = 37.72$
 $df = 14$
 $p = <.001$

Table 87 – Forest Enthusiasts’ activities by sex

Forest Enthusiasts’ activities	Sex		Row means %
	Male %	Female %	
0/1/2	51.2	48.2	63.8
3	41.8	58.2	15.9
4	40.0	60.0	20.3
Column total	47.5	52.2	100.0

$N_2 = 765$
 $\chi^2 = 9.98$
 $df = 6$
 $p = <.125$

Table 88 – Association between activities on last forest trip (phi coefficients)

	Activity or activity group									
	Picnic	Walk dog	Nature trail	Play games	Relax	Sports	Walk	View scenery	Fauna	Flora
Picnic	–	.026	*.305	*.307	**208	**120	**271	**283	**190	**252
Walk dog	.026	–	.034	.047	.033	.033	**261	**103	**175	**122
Nature trail	*.305	.034	–	.167	**175	.050	**241	**232	**253	**263
Play games	*.307	.047	.167	–	**138	*.088	**229	**140	**106	**158
Relax	**208	.033	**175	**138	–	.069	**201	**206	**119	**164
Sports	**120	.033	.050	*.088	.069	–	*.095	*.090	.069	.056
Walk	**271	**261	**241	**229	**201	*.095	–	**502	**401	**431
View scenery	**283	**103	**232	**140	**206	*.090	**502	–	**528	**546
Fauna	**190	**175	**253	**106	**119	.069	**401	**528	–	**554
Flora	**252	**122	**263	**158	**164	.056	**431	**546	.554	–

N.B. The phi coefficient is a measure of association. Chi Square is a measure of independence and in this table * indicates that the association between the two variables is significant (dependent) by Chi Square where p = .05 or less and ** indicates significance where p = .01 or less.

Level of education is also significantly associated, with, again, a fairly strong positive relationship (Table 85). Occupation/social status (Table 86) is also significantly related to being a 'Forest Enthusiast' with the ABs having the strongest representation. Sex, however, bears no association (Table 87).

This clear identification of a particular set of users prompted a further analysis of activities and the ways in which they may be grouped into different sets.

The data are in dichotomous categories, i.e. people either pursued a particular activity or did not. Hence 2 x 2 tables were formed between each of the ten activities listed in Table 72 and every other. An appropriate measure of association for 2 x 2 data is the phi coefficient, which can be interpreted in a similar fashion to a correlation coefficient. Chi Square is used as a measure of the significance of phi. The resulting matrix is shown in Table 88.

The matrix confirms that the Forest Enthusiast set extracted by a somewhat different method in the preceding section is by far the most compact one. That is, walking, viewing scenery, watching flora and fauna are likely to occur together, as evidenced by phis between them that are mainly in the .5 region.

Another activity quite likely to occur together with this Forest Enthusiast set is picnicking, but this activity is associated even more closely with playing games, relaxing (resting, reading and

courting) and following nature trails. This grouping forms a second activity set which was labelled the 'Day Visitor' set.

The 'Sports' group is wholly distinctive and appears to have virtually zero likelihood of occurring in combination with other activities, with the possible exception of picnicking, which is almost certainly subordinate. This set is labelled 'Sports Enthusiast'.

Finally, the same can be said of 'Walking the Dog', an activity that is obviously related to walking, a separate option, but to very little else.

It should be emphasised that these four sets, Forest Enthusiast, Day Visitor, Sports Enthusiast and Walking the Dog are sets of activities, but for purposes of the analysis they can be converted into equivalent sets of people by establishing a criterion based on the number of possible activities from each set to qualify as a member of that set.

In the case of Day Visitors, 17% engaged in two of the relevant activities and a further 19% in one. Hence, these two groups of respondents were separated and compared with the remainder of the sample who had engaged in none.

Turning to the Sports Enthusiast, only 7.5% of the sample engaged in the relevant activities and the criterion for membership of the set was placed at one.

Table 89 – Day Visitors’ activities by how often they visit forests

Day Visitors’ activities	How often they visit forests (previous year)						Row means
	Never	Once	Occasionally	Most months	Most weeks	Most days	
	%	%	%	%	%	%	%
0	49.7	5.1	23.9	9.4	7.4	4.5	64.0
1	11.9	13.2	49.0	13.9	10.6	1.3	18.9
2	6.6	14.7	50.0	21.3	7.4	0	17.0
Column total	35.2	8.3	33.1	12.3	8.0	3.1	100.0

N = 798
X² = 162.63
df = 10
p = <.000

N.B. 'How often...?' was assessed on the previous year but 'activities' relate to the last visit made. Hence, some activities are recorded for those who visited 'never'.

The object, of course, was to examine the other attributes of these three further sets of forest users, in the same way as for Forest Enthusiasts.

26.2 The Day Visitor set

As can be seen from Table 89, the Day Visitor set mainly report that they visit the forest only ‘occasionally’ and there is a negative relationship between engaging in Day Visitor activities and frequency of visiting. This is in marked contrast to the Forest Enthusiast set.

Of those who claimed at least one visit during the year (N = 572), there is also a significant relationship with the length of stay in the forest. As expected, those who engage in

this group of activities stay longer (Table 90) but there is no association between Day Visitor activities and the distance penetrated into the forest or the season of year preferred (Tables 91 and 92).

The Day Visitor activities are not related to occupation/social class, to education or to environmental group membership (Tables 93, 94 and 95). There is, however, a difference between the sexes, with these activities somewhat more likely to be reported by women (Table 96). There is also a relationship with age; younger people are more likely to engage in Day Visitor activities, with a peak age in the 31-40 years group (Table 97). This age group is most likely to have young children.

Table 90 – Day Visitors’ activities by how long they stay

Day Visitors’ activities	How long they stay						Row means
	½ hour or less %	1 hour %	1–2 hours %	2–4 hours %	All day %	Overnight %	
0	16.8	31.2	27.0	19.3	5.6	0	49.8
1	6.0	21.2	33.1	25.8	13.2	.7	26.4
2	6.6	13.2	30.1	33.8	13.2	2.9	23.8
Column total	11.5	24.3	29.4	24.5	9.4	.9	100.0

N_c = 572
X² = 54.36
df = 10
p = <.000

Table 91 – Day Visitors’ activities by length of walk into forest

Day Visitors’ activities	Length of walk into forest						Row means
	Stay near base %	½ mile or less %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
0	10.5	25.2	19.9	19.9	16.4	8.0	49.9
1	9.3	20.5	18.5	23.2	23.8	4.6	26.4
2	5.1	20.6	18.4	22.1	23.5	10.3	23.7
Column total	8.9	22.9	19.2	21.3	20.1	7.7	100.0

N_c = 573
X² = 11.37
df = 10
p = <.294

Table 92 – Day Visitors’ activities by preferred season to go

Day Visitors’ activities	Preferred season to go					Row means %
	No preference %	Spring %	Summer %	Autumn %	Winter %	
0	0	23.3	27.2	44.1	5.4	63.8
1	0	27.7	25.0	40.5	6.8	19.0
2	.7	21.6	25.4	47.8	4.5	17.2
Column total	.1	23.9	26.4	44.0	5.5	100.0

$N = 779$
 $\chi^2 = 7.85$
 $df = 8$
 $p = <.449$ (n.s.)

Table 93 – Day Visitors’ activities by occupation/social class

Day Visitors’ activities	Occupation/social class						Row means %
	A %	B %	C1 %	C2 %	D %	E %	
0	1.6	12.6	34.0	22.8	13.6	15.4	63.2
1	4.8	15.6	29.9	28.6	10.9	10.2	19.1
2	3.7	17.6	33.1	24.3	11.0	9.56	17.7
Column total	2.6	14.0	33.0	24.2	12.6	13.4	100.0

$N = 769$
 $\chi^2 = 19.08$
 $df = 2$
 $p = <.087$ (n.s.)

Table 94 – Day Visitors’ activities by age at completion of education

Day Visitors’ activities	Age at completion of education						Row means %
	14 or under %	15–16 %	17–19 %	20–21 %	22 or over %	Still in education %	
0	13.9	52.7	17.7	5.4	6.6	3.8	63.9
1	8.6	45.7	23.2	9.9	9.3	3.3	19.2
2	7.5	47.4	24.8	6.8	9.0	4.5	16.9
Column total	11.8	50.4	19.9	6.5	7.5	3.8	100.0

$N = 787$
 $\chi^2 = 16.01$
 $df = 10$
 $p = <.099$ (n.s.)

Table 95 – Day Visitors’ activities by membership of environmental groups

Day Visitors’ activities	Membership of environmental groups				Row means %
	None %	One %	Two %	More than two %	
0	84.0	10.5	2.6	3.0	63.9
1	78.8	13.9	5.3	2.0	19.0
2	78.7	11.8	6.6	2.9	17.1
Column total	82.1	11.3	3.8	2.8	100.0

N_i = 794
X² = 8.09
df = 6
p = <.231 (n.s.)

Table 96 – Day Visitors’ activities by sex

Day Visitors’ activities	Sex		Row means %
	Male %	Female %	
0	51.5	48.5	63.9
1	43.0	57.0	18.6
2	38.3	61.7	17.5
Column total	47.6	52.4	100.0

N_i = 762
X² = 8.82
df = 2
p = <.012

Table 97 – Day Visitors’ activities by age

Day Visitors’ activities	Age						Row means %
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
0	9.7	20.7	17.0	16.4	15.2	21.1	63.9
1	10.6	23.8	26.5	13.9	8.6	16.6	19.0
2	8.1	27.2	36.8	6.6	10.3	11.0	17.1
Column total	9.6	22.4	22.2	14.2	13.1	18.5	100.0

N_i = 794
X² = 41.49
df = 10
p = <.000

26.3 The Dog Walker set

It was pointed out earlier that as many as 20% of the sample reported walking the dog as one of the activities on their last visit, so the forests are clearly meeting an important recreational or functional need in this respect. It has to be noted that many of these respondents were doubtless including the dog when their main activity was something different; but there is no particular activity that is combined more than another with walking the dog.

Walking the dog is an activity that is done relatively frequently and it is clear from Table 98 that this activity accounts for a high proportion of the weekly/daily visits. There is no significant relationship with how long the visitor stays in the forest or how far from base he/she walks. In fact, it appears to be a quite ubiquitous activity bearing no relation to environmental group membership, age, education or occupation/social class (Tables 98 to 105).

Table 98 – Dog Walker by how often they go

Dog Walker	Age						Row means %
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
0	9.7	20.7	17.0	16.4	15.2	21.1	63.9
1	10.6	23.8	26.5	13.9	8.6	16.6	19.0
2	8.1	27.2	36.8	6.6	10.3	11.0	17.1
Column total	9.6	22.4	22.2	14.2	13.1	18.5	100.0

N = 798
X² = 125.62
df = 5
p = <.000

Table 99 – Dog Walker by how long they stay

Dog Walker	How long they stay						Row means %
	½ hour or less %	1 hour %	1–2 hours %	2–4 hours %	All day %	Overnight %	
Yes	11.7	22.5	29.6	24.9	10.5	.7	71.5
No	11.0	28.8	28.8	23.3	6.7	1.2	28.5
Column total	11.5	24.3	29.4	24.5	9.4	.9	100.0

N = 572
X² = 4.20
df = 5
p = <.521 (n.s.)

Table 100 – Dog Walker by length of walk into forest

Dog Walker	Length of walk into forest						Row means
	Stay near base %	½ mile or less %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
Yes	9.0	22.2	20.2	20.7	19.5	8.3	71.6
No	8.6	24.5	16.6	22.7	21.5	6.1	28.4
Column total	8.9	22.9	19.2	21.3	20.1	7.7	100.0

N = 573
X² = 2.27
df = 5
p = n.s.

Table 101 – Dog Walker by membership of environmental groups

Dog Walker	Membership of environmental group				Row means
	None %	One %	Two %	More than two %	
Yes	82.3	11.7	3.6	2.4	79.5
No	81.6	9.8	4.3	4.3	20.5
Column total	82.1	11.3	3.8	2.8	100.0

N = 794
X² = 2.29
df = 3
p = n.s.

Table 102 – Dog Walker by age

Dog Walker	Age						Row means
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
Yes	8.7	22.5	23.6	13.0	13.0	19.2	79.5
No	12.9	22.1	16.6	19.0	13.5	16.0	20.5
Column total	9.6	22.4	22.2	14.2	13.1	18.5	100.0

N = 794
X² = 9.32
df = 5
p = n.s.

Table 103 – Dog Walker by age at completion of education

Dog Walker	Age at completion of education						Row means
	14 or under	15–16	17–19	20–21	22 or over	Still in education	
	%	%	%	%	%	%	%
Yes	11.2	50.3	20.4	6.4	7.3	4.2	79.4
No	14.2	50.6	17.9	6.8	8.0	2.5	20.6
Column total	11.8	50.4	19.9	6.5	7.5	3.8	100.0

N = 788
 $\chi^2 = 2.74$
df = 5
p = n.s.

Table 104 – Dog Walker by occupation/social class

Dog Walker	Occupation/social class						Row means
	A	B	C1	C2	D	E	
	%	%	%	%	%	%	%
Yes	2.4	15.8	32.2	23.8	11.2	0	79.6
No	3.2	7.0	35.7	25.5	17.8	0	20.4
Column total	2.6	14.0	32.9	24.1	12.6	0	100.0

N = 771
 $\chi^2 = 5.843$
df = 3
p = n.s.

Table 105 – Dog Walker by best season to go

Dog Walker	Best season to go					Row means
	No preference	Spring	Summer	Autumn	Winter	
	%	%	%	%	%	%
Yes	.2	23.9	27.0	43.5	5.3	79.3
No	–	23.6	24.2	46.0	6.2	20.7
Column total	.1	23.9	26.4	44.0	5.5	100.0

N = 779
 $\chi^2 = .993$
df = 4
p = <.911 (n.s.)

Table 106 – Sport Enthusiast by how often they visit forests

Sport Enthusiast	How often they visit forests						Row means
	Never %	Once %	Occasionally %	Most months %	Most weeks %	Most days %	
Yes	37.4	8.0	32.5	11.8	7.3	3.0	92.5
No	8.3	11.7	40.0	18.3	16.7	5.0	7.5
Column total	35.2	8.3	33.1	12.3	8.0	3.1	100.0

N = 798
X² = 28.86
df = 5
p = <.000

Table 107 – Sport Enthusiast by how long they stay

Sport Enthusiast	How long they stay						Row means
	½ hour or less %	1 hour %	1–2 hours %	2–4 hours %	All day %	Overnight %	
Yes	12.7	25.2	30.1	22.9	8.8	.4	89.5
No	1.7	16.7	23.3	38.3	15.0	5.0	10.5
Column total	11.5	24.3	29.4	24.5	9.4	.9	100.0

N = 572
X² = 28.61
df = 5
p = <.000

Table 108 – Sport Enthusiast by length of walk into forest

Sport Enthusiast	Length of walk into forest						Row means
	Stay near base %	½ mile or less %	About 1 mile %	1–2 miles %	2–4 miles %	5 or more miles %	
Yes	8.8	24.4	19.3	21.1	19.7	6.8	89.5
No	10.0	10.0	18.3	23.3	23.3	15.0	10.5
Column total	8.9	22.9	19.2	21.3	20.1	7.7	100.0

N = 573
X² = 10.13
df = 5
p = <.071 (n.s.)

26.4 The Sport Enthusiast set

Only 9% of the sample engaged in one or more sporting activities on their last trip, but this is generally regarded as an important minority and it is helpful to explore their characteristics. Table 106 shows that they tend to be relatively frequent visitors, and they spend more than average time in the forest (Table 107). Table 108 shows that they do not move further from their base than those engaged in other activities and this may reflect the relative importance of picnicking within the set.

Table 109 shows the Sport Enthusiasts are not more likely to be members of environmental

groups, but they are clearly associated with the younger age categories (Table 110). Education is also a significant factor, with a tendency for more years of education to be associated with a greater likelihood of engaging in sports (Table 111). It has to be borne in mind that 80% of the respondents fall into the 'less education' categories, i.e. leaving school at 16-19, and these engage in sports to only a very small degree at present. Occupation/social class is another factor that is related to sports, with a tendency, albeit uneven, for the ABs to engage in more sport and the DEs less (Table 112). Finally, of those engaging in sporting activities, there are fewer men than women (Table 113).

Table 109 – Sport Enthusiast by membership of environmental group

Sport Enthusiast	Membership of environmental group				Row means %
	None %	One %	Two %	More than two %	
Yes	82.6	10.8	3.8	2.9	92.4
No	76.7	18.3	3.3	1.7	7.6
Column total	82.1	11.3	3.8	2.8	100.0

N = 794
X² = 3.36
df = 3
p = <.34 (n.s.)

Table 110 – Sport Enthusiast by age

Sport Enthusiast	Age						Row means %
	Under 21 %	21–30 %	31–40 %	41–50 %	51–60 %	Over 60 %	
Yes	9.8	21.5	21.9	13.6	13.5	19.6	92.4
No	6.7	33.3	25.0	21.7	8.3	5.0	7.6
Column total	9.6	22.4	22.2	14.2	13.1	18.5	100.0

N = 794
X² = 14.31
df = 5
p = <.014

Table 111 – Sport Enthusiast by age at completion of education

Sport Enthusiast	Age at completion of education						Row means
	14 or under	15–16	17–19	20–21	22 or over	Still in education	
	%	%	%	%	%	%	%
Yes	12.6	49.9	20.5	6.0	7.3	3.7	92.4
No	1.7	56.7	13.3	11.7	10.0	5.0	7.6
Column total	11.8	50.4	19.9	6.5	7.5	3.8	100.0

N = 788
X² = 23.21
df = 6
p = <.001

Table 112 – Sport Enthusiast by occupation/social class

Sport Enthusiast	Occupation/social class						Row means
	A	B	C1	C2	D	E	
	%	%	%	%	%	%	%
Yes	2.5	13.6	33.6	23.8	12.2	13.9	92.2
No	3.3	18.3	25.0	28.3	16.7	6.7	7.8
Column total	2.6	14.0	32.9	24.1	12.6	13.4	100.0

N = 771
X² = 17.79
df = 7
p = <.013

Table 113 – Sport Enthusiast by sex

Sport Enthusiast	Sex		Row means
	Male	Female	
	%	%	%
Yes	44.9	54.8	92.5
No	78.9	19.3	7.5
Column total	47.5	52.2	100.0

N = 765
X² = 39.96
df = 3
p = <.000

Table 114 – Sport Enthusiast by best season to go

Sport Enthusiast	Best season to go					Row means %
	No preference %	Spring %	Summer %	Autumn %	Winter %	
Yes	.1	24.3	25.9	44.0	5.7	92.6
No	0	19.0	32.8	44.8	3.4	7.4
Column total	.1	23.9	26.4	44.0	5.5	100.0

N = 779
 $\chi^2 = 2.15$
df = 4
p = <.707 (n.s.)

26.5 Visual preferences for landscapes

At about the mid-point of the interview, the respondents were shown ten colour photographs of forestry landscapes. Two sets were used, distributed about equally within the four regions. They were the same as the distant landscape photographs used in the visitor centre procedure (Part 5), but it is important to note that the household interview allowed only for the measurement of a single evaluative dimension. To quote:

“Thinking of the one where you would most enjoy looking at the scenery, could you please put this one on the left and arrange the others in order with the one you like least over on the right.”

The mean ranks for each of the 20 photographs are shown in Table 115.

Following this ranking procedure, the respondents were asked to give, in an open ended format, two reasons for their choices of the two landscapes most preferred and the two least preferred. These reasons were coded into groups and the frequencies in each group are shown in Tables 116 and 117.

They are less informative than might have been hoped. Looking first at why the favoured pictures are preferred (Table 117), the presence of water (including ‘reflections’) accounts for almost a third (31%). A further 31% of respondents include some general reference to the scenic quality and the remainder is a wide range of more specific reasons with a maximum of 9%, shared by ‘colours’ and ‘scenic variety’. It can be argued that the public shares the

Table 115 – Preferences for twenty landscape photographs

SET 1				SET 2			
Picture	Mean of ranks	Rank (10)	Rank (20)	Picture	Mean of ranks	Rank (10)	Rank (20)
1	7.6	9.0	18.0	1	6.1	7.0	12.0
2	3.9	3.0	5.5	2	5.5	5.0	9.0
3	5.1	4.0	7.5	3	6.6	8.0	16.0
4	2.6	1.0	1.0	4	9.2	10.0	20.0
5	8.3	10.0	19.0	5	7.0	9.0	17.0
6	2.9	2.0	3.0	6	5.1	4.0	7.5
7	6.3	7.5	14.5	7	2.7	1.0	2.0
8	6.3	7.5	14.5	8	3.1	2.0	4.0
9	5.7	5.0	11.0	9	5.6	6.0	10.0
10	6.2	6.0	13.0	10	3.9	3.0	5.5

landscape architects’ valuation of high diversity, which appears in ‘scenic variety’, ‘colours’, and ‘like the mix of trees’, which together account for 23%.

Turning to the least preferred landscapes (Table 116), it is here that one might expect to look for adverse comments on coniferous plantations. However, ‘too dense trees’ and ‘dislike clump formation of trees’ combine to only 6%. It is the

absence of any kind of trees that meets with more general disapproval. In particular, ‘barren, treeless’ accounts for 19%, and ‘just fields, farmland’ a further 8%, may be said to echo a similar theme. However, the dominant categories are some variation on the theme of bland, uninteresting, boring, flat and dull - a total of 52%. These are the converse of the ‘generally scenic’ and high diversity’ assessments of the preferred landscapes.

Table 116 – Why the least preferred pictures are disliked

Reasons why least preferred pictures disliked	%
Barren, treeless	19
Bland, uninteresting	19
Plain, nothing to look at	14
Just fields, farmland	8
Boring	7
Too flat	6
Dull	6
Man-made	5
Too dense trees	4
Poor for walking, riding	2
Dislike clump formation of trees	2
Dislike mountains, hills	2
Criticism of photograph	1
Too rocky, rugged	1
Other	1
Dislike moorland	1
Similar to home	1
Lacks life	0
Untidy	0

Table 117 – Why the favourite pictures are preferred

Reason why favourite pictures preferred	%
Presence of water	18
Generally scenic	15
Generally scenic plus water	11
Scenic variety	9
Colours	9
Peaceful	5
Like the mix of trees	5
Mountains and hills	5
Open space	4
Good for walking	4
Natural scenery	2
Memory of similar place	2
Scenic plus rocks and crags	2
Interesting scenery	2
Reflections	2
Scenic and suitable for activities	1
Good picnic place	1
Good time of year	1
Other	1

The mean preferences, most preferred and least preferred landscapes are shown in graphical form in Figures 7–12.

Figure 7 Mean preferences for landscapes (Set 1)

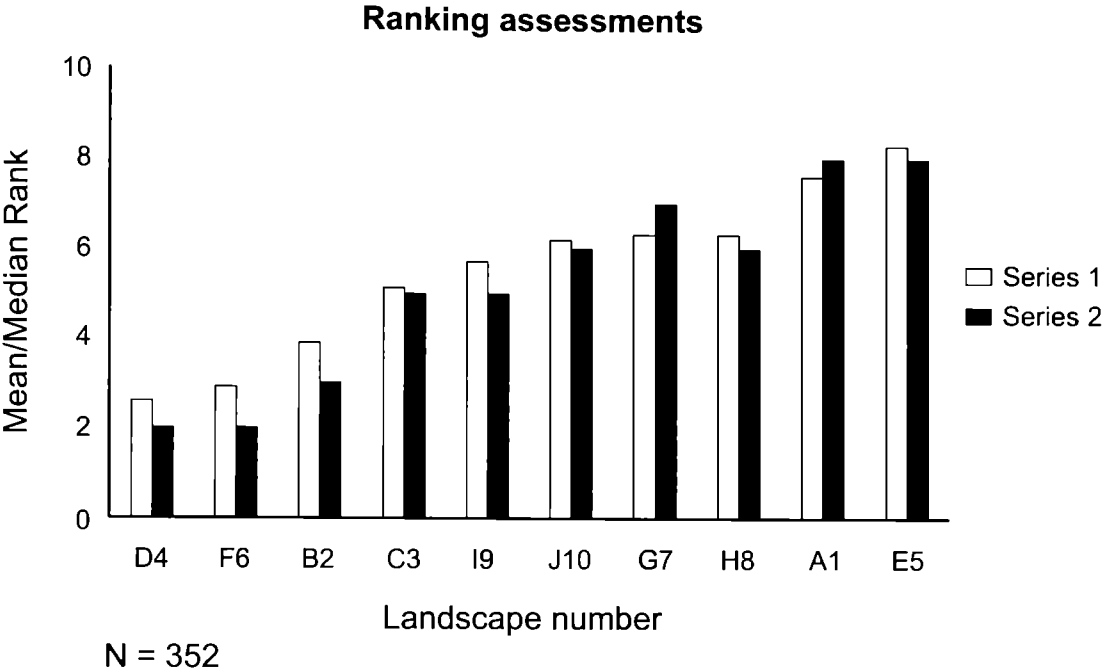


Figure 8 Mean preferences for landscapes (Set 3)

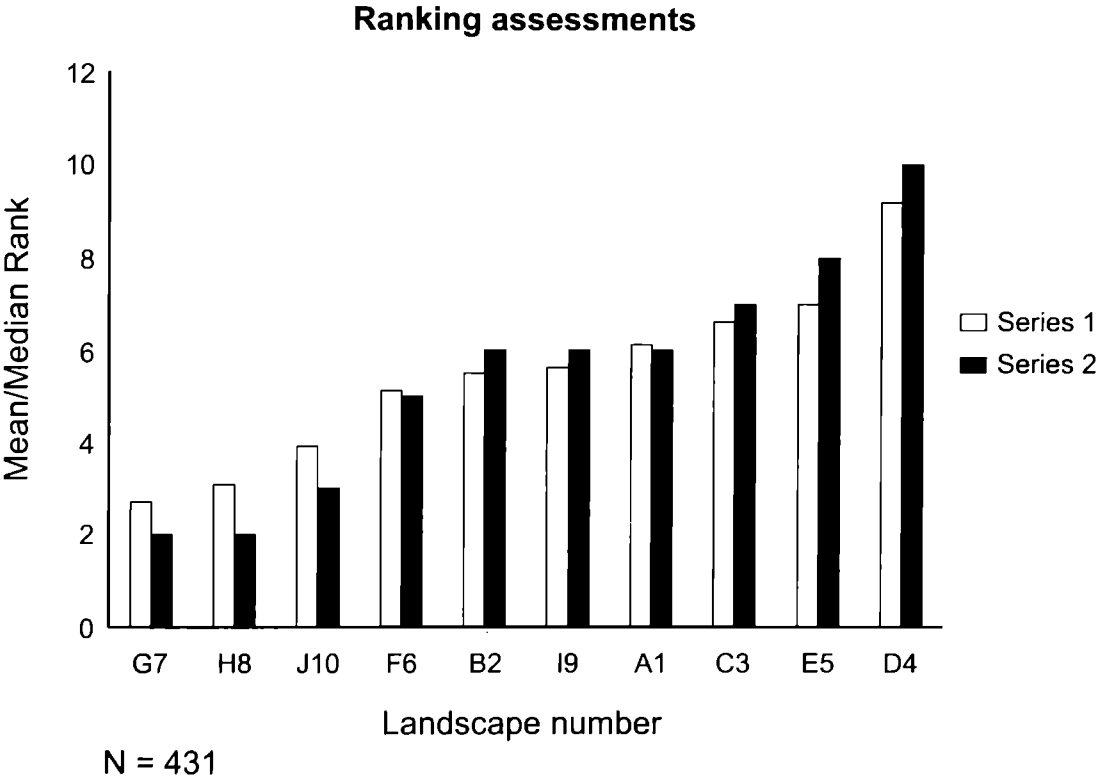


Figure 9 Most preferred landscape (Set 1)

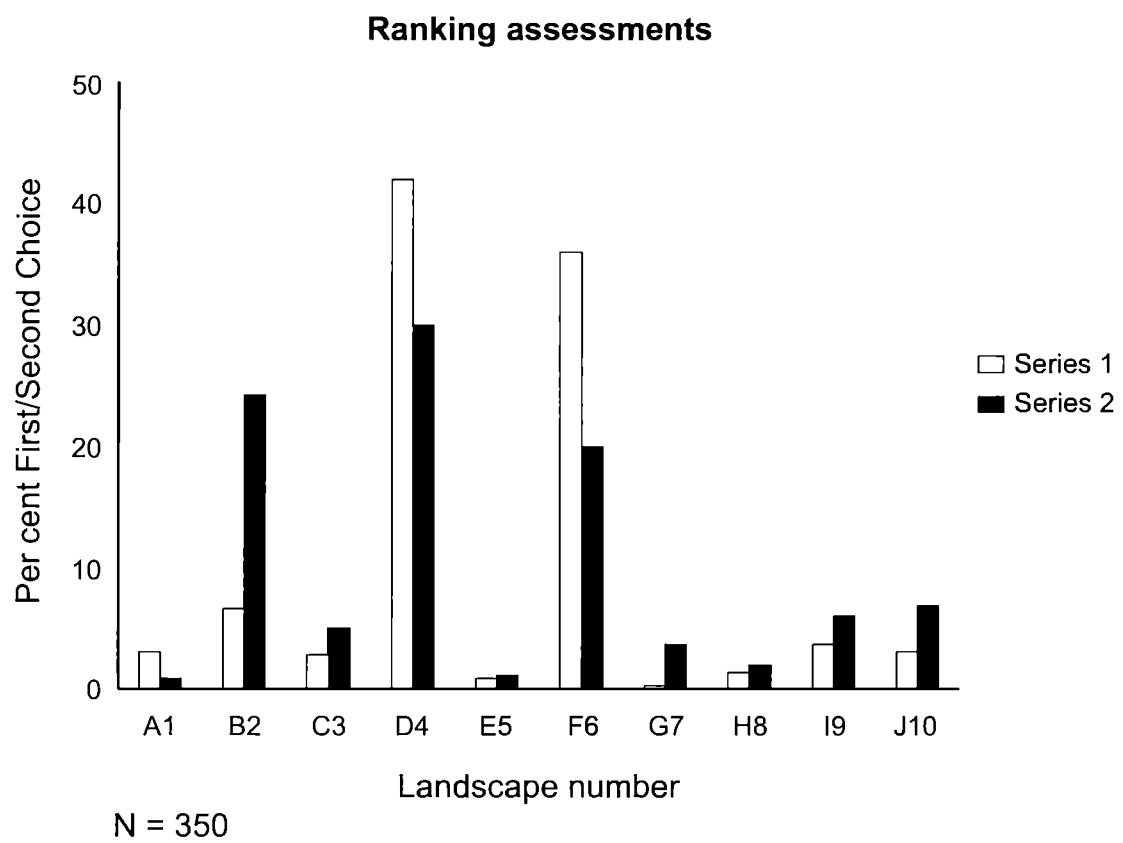


Figure 10 Most preferred landscape (Set 3)

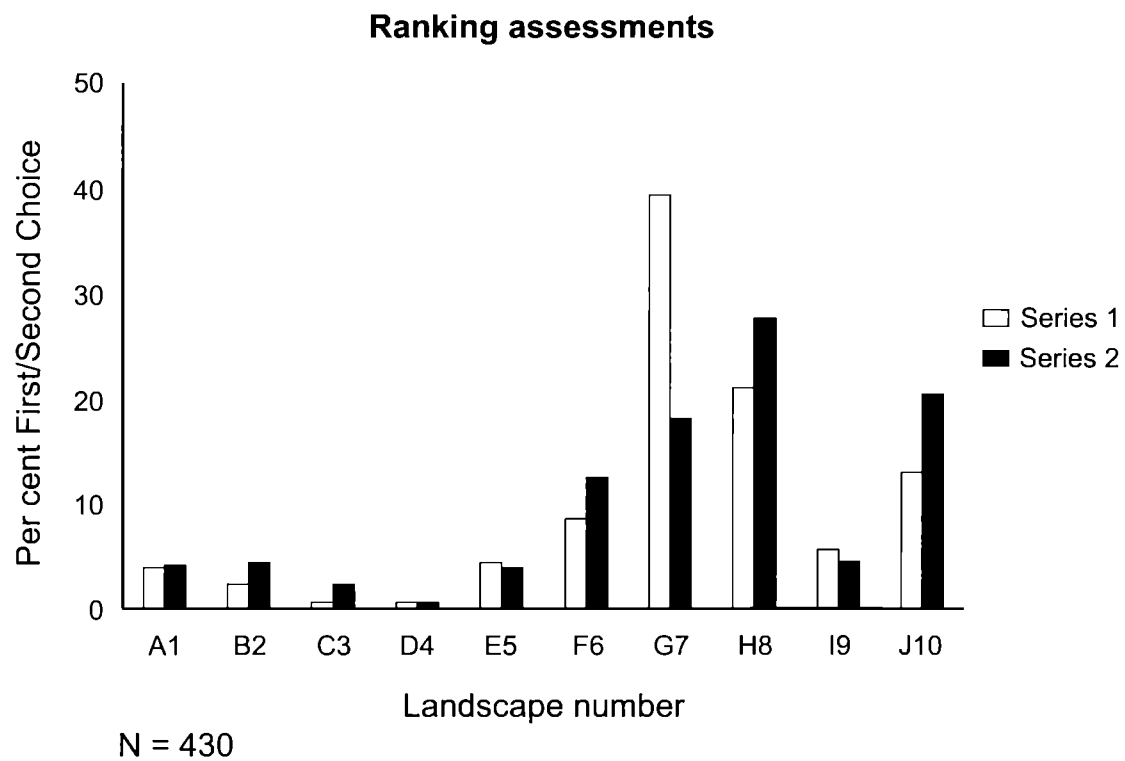


Figure 11 Least preferred landscape (Set 1)

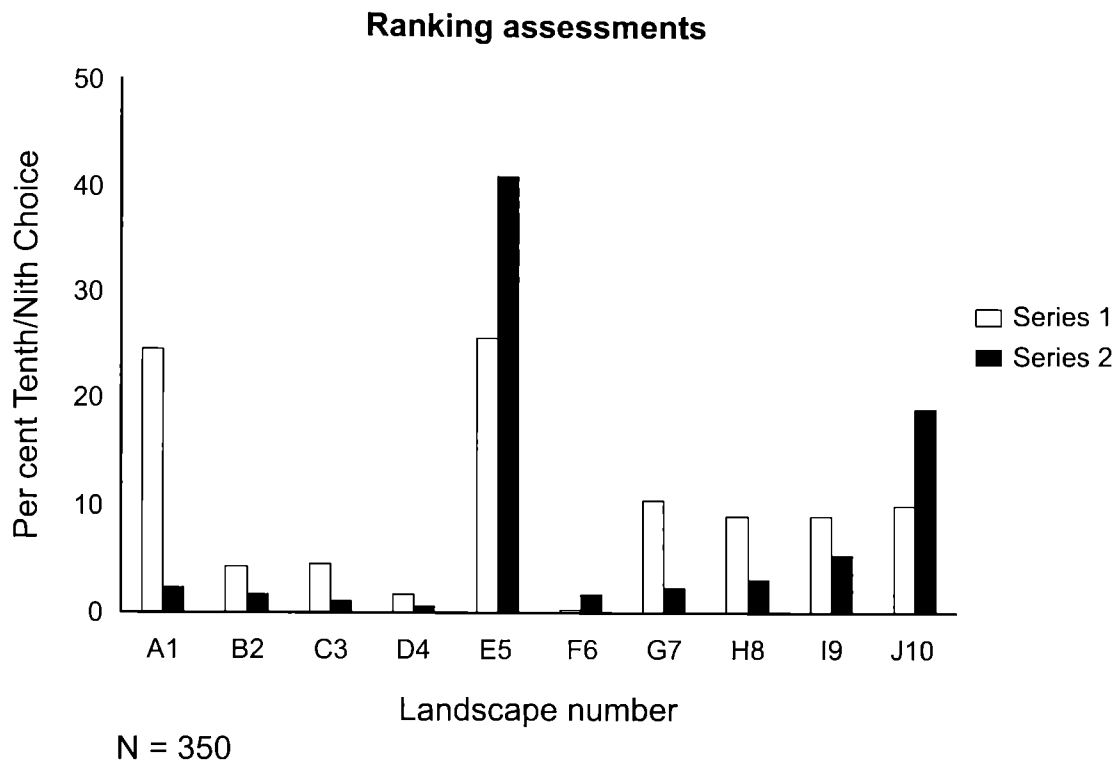
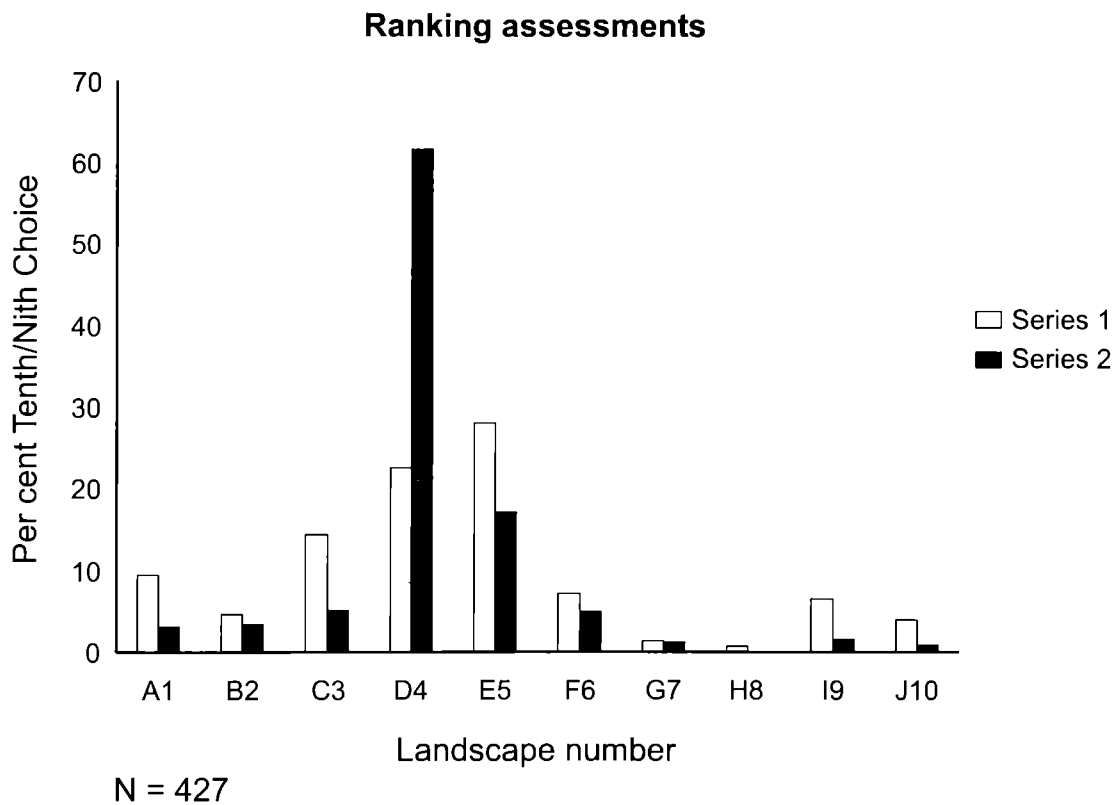


Figure 12 Least preferred landscape (Set 3)



27. Appendices

27.1 Appendix F - Sample distribution by region, area and district

Interview addresses were chosen at random from within districts and hence were not necessarily in the town chosen to identify the district.

E. SCOTLAND

Area	Postcode		Number of interviews	District
Dundee	DD	2	20	Dundee
		3	7	Dundee
		8	16	Forfar
		10	19	Montrose
Kirkcaldy	KY	1	7	Kirkcaldy
		6	2	Glenrothes
		7	18	Ladybank
		8	2	Lower Largo
		9	15	Elie
		10	31	Anstruther
		11	18	Inverkeithing
		12	1	Dunfermline
		14	1	Newburgh
Aberdeen	AB	15	1	Cupar
		1	7	Peterculter
		2	12	Bridge of Don
Edinburgh	EH	19	20	Bonnyrigg
Postcode missing			2	
Total			200	

N.E. ENGLAND

Area	Postcode		Number of interviews	District
Newcastle	NE	3	20	Newcastle
		5	6	Newcastle
		11	1	Newcastle
		13	14	Dinnington
		15	4	Heddon on the Wall
		28	20	Wallsend
		33	2	South Shields
		36	16	East Boldon
		40	20	Ryton
Sunderland	SR	2	1	Ryhope
		3	9	New Silsworth
		5	2	Castletown
		6	7	Cleadon
Durham	DH	1	1	Durham
		2	23	Durham
		3	2	Chester le Street
		7	13	Brandon
		8	4	Consett
		9	33	Stanley
Postcode missing			2	
Total			200	

N. WALES

Area	Postcode		Number of interviews	District
Llandudno	LL	40	3	Dolgellau
		42	40	Barmouth
		44	3	Dyffryn Ardudwy
		54	5	Caernarvon
		55	13	Caernarvon
		57	58	Bangor
		58	6	Beaumaris
		59	17	Menai
Shrewsbury	SY	23	25	Aberystwyth
Llandrindod	LD	1	18	Llandrindod Wells
		2	2	Builth Wells
		6	5	Rhayader
Postcode missing			5	
Total			200	

S.E. ENGLAND

Area	Postcode		Number of interviews	District
Guildford	GU	12	2	Aldershot
		15	6	Camberley
		16	2	Frimley
		17	7	Yateley
		22	1	Woking
Reading	RG	1	11	Reading
		2	1	Reading
		3	24	Reading
		4	20	Reading
		5	5	Reading
		8	1	Goring
		9	1	Henley
		10	22	Twyford
		11	1	Wokingham
		12	37	Bracknell
Slough	SL	26	25	Tadley, Baughurst
		1	1	Slough
		6	3	Maidenhead
Oxford	OX	7	1	Marlow
		11	20	Didcot
		12	1	Wantage
		14	3	Abingdon
Twickenham	TW	8	1	Hampton
		19	1	Wraysbury
Postcode			3	
Total			200	

N.B. The frequencies for the open-ended questions are given in Appendix I.

[illegible]

Good morning/afternoon/evening. I am from the Setchfield Research Centre. We are doing a survey on behalf of the Forestry and Countryside Commissions looking at peoples' views about the countryside. The interview should take about 30 minutes.

1. In the last four weeks have you: (Please circle those that apply)

- | | | |
|--|---|------|
| Been for a drive, outing or picnic <u>in the countryside</u> (including seashore) | 1 | (10) |
| Been for a long walk, ramble or hike (of more than two miles) <u>in the countryside</u> | 1 | (11) |
| Visited any historic or stately homes, gardens, zoos country parks or wildlife parks <u>in the countryside</u> | 1 | (12) |
| Pursued a particular interest or activity involving the countryside, for example: fishing, horse riding, shooting or hunting, orienteering, etc. | 1 | (13) |

(Interviewer - prompt once, if necessary, by saying for example, “How is a day out in the forest different to a day out on the beach?”)

a. _____

 _____ (14, 15)

b. _____

□□ (16, 17)

$$\begin{array}{ll} \text{Spring} & 1 \\ \text{Summer} & 2 \\ \text{Autumn} & 3 \\ \text{Winter} & 4 \end{array} \quad (18)$$
$$\square\square \quad (19, 20)$$

Never (go to 6a)	1	(21)
Once	2	
Occasionally	3	
Most months	4	
Most weeks	5	
Most days	6	

(b) How many times have you visited one (i.e. in 1989) as part of another trip, or when you just went out for a drive?

Never (go to 6a)	1	(22)
Once	2	
Occasionally	3	
Most months (or more)	4	
Most weeks (or more)	5	
Most days	6	

5(a) On your last visit to a forest/wood, how long would you say that you spent there?

1/2 hour or less	1	(23)
About 1 hour	2	
1-2 hours	3	
2-4 hours	4	
All day	5	
Overnight	6	

(b) How far did you travel to this forest/wood? (Round trip from holiday base or home). (Interviewer - Read out).

0-5 miles	1	(24)
6-10 miles	2	
11-25miles	3	
26-50 miles	4	
Over 50 miles	5	

(c) How far into the forest/wood did you go? For example, once you got to the forest, how far away from your base did you walk or ride? Can you choose one of the following distances to give an indication of how far from your starting point you walked or rode. (Interviewer - if trip was by other vehicle, e.g. horse or bicycle, treat as car).

Stayed near car or base	1	(25)
Walked 1/2 mile or less	2	
About 1 mile	3	
1-2 miles	4	
2-4 miles	5	
5 miles or more	6	

(d) Who were you with on this last visit?

Spouse/partner	1	(26)
Family including children	2	
Friends	3	
Alone	4	
Club or group	5	
Other	6	

(e) Which of the following, if any, did you do on this last visit? (Interviewer: please show card A and circle all those activities that apply).

1	Walking	1	(27)
2	Horse riding	1	(28)
3	Orienteering	1	(29)
4	Fishing	1	(30)
5	Boating	1	(31)
6	Camping	1	(32)
7	Picnicking	1	(33)
8	Nature trails	1	(34)
9	Playing games	1	(35)
10	Viewing scenery	1	(36)

(11)	Watching birds & animals	1	(37)
(12)	Resting/sleeping	1	(38)
(13)	Reading	1	(39)
(14)	Looking at trees & flowers	1	(40)
(15)	Walking dog	1	(41)
(16)	Cycling	1	(42)
(17)	Courting	1	(43)
(18)	Other		
	Please Specify.....		(44)

(f) How did you get there? (Interviewer - circle one only, main form of transport)

Car	1	Walk	6	(45)
Horse	2	Bicycle	7	
Motorbike	3	Coach/tour	8	
Bus	4	Other	9	
Train	5			

6(a) Do you think of forests as different from woods or are they really the same thing?

Different (got to 6b)	1	(46)
The same (go to 7)	2	

(b) Can you suggest some particular ways in which forests and woods are different?
(Interviewer - prompt once - write in full).

(i).....	☐ ☐	(47,48)
(ii).....	☐ ☐	(49,50)

(Interviewer: if different, say; we shall be thinking from here on of Forests, ones where you could walk at least half a mile from end to end INCLUDING the very large kinds of forests planted by the Forestry Commission and others.)

7. Thinking about forests in general - what do you think forest managements can usefully do or provide that would make your visits more enjoyable? (Interviewer - Do not read out for 1st choice; circle ‘don’t know’ if appropriate. Show card B for 2nd and 3rd choices).

		1st Choice	2nd Choice	3rd Choice	
1)	Prefer no facilities at all	1	2	3	(51)
2)	Nature trails	1	2	3	(52)
3)	Visitor centres	1	2	3	(53)
4)	Information leaflets	1	2	3	(54)
5)	Well marked paths	1	2	3	(55)
6)	Signposts	1	2	3	(56)
7)	Easier access	1	2	3	(57)
8)	Rubbish bins	1	2	3	(58)
9)	Play areas for children	1	2	3	(59)
10)	Picnic tables	1	2	3	(60)
11)	Facilities for the disabled	1	2	3	(61)

12)	Shops/cafeteria	1	2	3	(62)
13)	Car parks	1	2	3	(64)
14)	Toilets	1	2	3	(65)
15)	Shelter from weather	1	2	3	(66)
16)	Warden or ranger	1	2	3	
	Other - please specify	1	2	3	(67)
					
17)	Don't know	1	2	3	(68)

8(a) Here are ten photographs of forestry landscapes. Thinking of the one where you would most enjoy looking at the scenery, could you please put this one on the left and arrange the others in order with the one you like least over on the right. (Interviewer: show card C - code rank order from 1 = Most preferred to 10 = least preferred).

Photo Set No. ☐ _____ (69)
(Coder - Code
10 as 0)

A	☐	(70)	F	☐	(75)
B	☐	(71)	G	☐	(76)
C	☐	(72)	H	☐	(77)
D	☐	(73)	I	☐	(78)
E	☐	(74)	J	☐	(79)

(b) Now, please give me some reasons why you especially like these. (Interviewer - indicate two most preferred: one reason for each photo, but allow the same reason if respondent insists. Please specify (using letter from 8(a)) which they refer to - write in full). (Skip col 80)
(Dup. cols 1-9)

Please specify:

Photo letter _____	☐ ☐	
Choice	☐ ☐	(10,11,12)
(1st).....	☐ ☐	
Photo letter _____	☐ ☐	
Choice	☐ ☐	(13,14,15)
(2nd).....	☐ ☐	

(c) Can you also give me some reasons why you least like these two: (Interviewer: indicate two least preferred: one reason for each photo, but allow the same reason if respondent insists. Please specify which they refer to (using letter from 8(a)) - write in full).

Please specify:

Photo letter _____	☐ ☐	
Choice	☐ ☐	(16,17,18)
(9th).....	☐ ☐	
Photo letter _____	☐ ☐	
Choice	☐ ☐	(19,20,21)
(10th).....	☐ ☐	

9. The following statements are about what forests may offer people. I will read them out and I want you to rate them in order of importance to you by using the following five-point scale where 5 is very important and 1 is not important at all. (Interviewer show card D; read out all choices then code 1-5 according to rating. Rotate order).

- 1 = Not important at all
- 2 = Slightly important
- 3 = Quite important
- 4 = Important
- 5 = Very important

	Not Imp.	Slightly Imp.	Quite Imp.	Imp.	Very Imp.	
Peace and quiet	1	2	3	4	5	(22)
Privacy	1	2	3	4	5	(23)
Complete break from worries	1	2	3	4	5	(24)
Chance to get away from other people	1	2	3	4	5	(25)
Chance to observe wildlife	1	2	3	4	5	(26)
Healthy exercise (walking or other forms)	1	2	3	4	5	(27)
Social/family outing	1	2	3	4	5	(28)
Good for walking dogs	1	2	3	4	5	(29)
Escape from city life	1	2	3	4	5	(30)
Beautiful scenery	1	2	3	4	5	(31)
Open to everyone	1	2	3	4	5	(32)
Good for children to play	1	2	3	4	5	(33)

10. This time we will use the same kind of scale - but going from 'disagree' to 'agree'. How much would you agree that each of the following describes your feelings in general when you are in/have been in forests? (Interviewer: show card E - read out all choices and then code 1-5 according to rating. Rotate order).

- 1 = Disagree strongly
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Agree strong

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly	
If alone, worried about being alone	1	2	3	4	5	(34)
Afraid of trespassing	1	2	3	4	5	(35)
Vulnerable	1	2	3	4	5	(36)
Secure	1	2	3	4	5	(37)
Uneasy	1	2	3	4	5	(38)
Happy	1	2	3	4	5	(39)
Afraid of getting lost	1	2	3	4	5	(40)
Close to nature	1	2	3	4	5	(41)
Free to explore	1	2	3	4	5	(42)
Uplifted/revived	1	2	3	4	5	(43)
In touch with the past	1	2	3	4	5	(44)
Relaxed	1	2	3	4	5	(45)
Bored	1	2	3	4	5	(46)
Hemmed in	1	2	3	4	5	(47)

11(a) Using the same five-point scale, can you rate each of the following statements in terms of how you think that forests should appear in the landscape. (Interviewer: show card F - read out all choices and then code 1 - 5 according to rating. Rotate order).

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly	
They should look inviting	1	2	3	4	5	(48)
They should blend into the landscape	1	2	3	4	5	(49)
They should have a lot of variety	1	2	3	4	5	(50)
Trees should be spaced out from each other	1	2	3	4	5	(51)
They should add colour and beauty to landscape	1	2	3	4	5	(52)
They should be a defined feature on landscape	1	2	3	4	5	(53)
They should be on a large scale	1	2	3	4	5	(54)
They should look natural	1	2	3	4	5	(55)
They should have well-marked paths or trails	1	2	3	4	5	(56)

(b) In the same way, can you rate the following statements in terms of how you think that trees in the forest should be managed.

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly	
They should be casual, irregularly spaced	1	2	3	4	5	(57)
They should be in orderly rows	1	2	3	4	5	(58)
They should be allowed to grow wild	1	2	3	4	5	(59)

12(a) Would you like there to be more forests in your local area?

Yes (go to b)	1	(60)
No (go to 14)	2	
Don't know (go to 14)	3	

(b) What kinds of trees would you prefer them to have? (Interviewer: if particular species mentioned, code broadleaved-coniferous as appropriate).

Broadleaved	1	(61)
Coniferous	2	
Mixture of the two	3	
Any kind of trees	4	
Don't know	5	

(c) Should these urban forests be funded mainly by: (Interviewer - code one only - if more than one, emphasise 'mainly')

Community (i.e. through rates/taxes or community charge)	1	(62)
Users (i.e. by charging actual visitors)	2	
Sales of timber	3	
Other (please specify).....	4	

(d) Do you think that ordinary people would wish to share in the planning and care of these forests, given the opportunity?

Yes	1	(63)
No	2	
Don't know	3	

13. I will read out the four main ways in which forests and woods in this country are used. Could you please rank them in order of importance as you see them, with one being the most important.
(Interviewer: show card G - write in rank order).

Recreation		(64)
Timber production		(65)
Nature conservation		(66)
Scenic beauty		(67)

14. Are you or (if relevant only) your wife or husband a member of any society or organisation for the protection or enjoyment of the countryside or wildlife? Some examples are listed on this card.
(Interviewer - show card H, code for examples and others with definition:)

None	1	(68)
Yes, one	2	
Yes, two	3	
Yes, more than two	4	

15(a) Can I just check; would you describe the place where you live as being:

In a big city (go to b)	1	(69)
In a suburb or outskirts of a city (go to b)	2	
In a small city or town (go to b)	3	
In a <i>country</i> village or town	4	
Or - in the countryside	5	

If the respondent lives in city, suburbs or small city/town:

(b) Have you ever lived in the countryside or in a country village or town for say, three years or more - for instance when you were a child or at some time before now?

Yes	1	(70)
No	2	

(c). About how far are you from the nearest countryside you can visit or walk in. (Interviewer - please do not include any city parks. Code respondent's own estimate).

Less than 1/2 a mile (15 mins walk)	1	(71)
1/2 up to 1 mile (15-30 mins walk)	2	
Over 1 mile up to 3 miles	3	
Over 3 miles, up to 10 miles	4	
Over 10 miles	5	
Don't know	6	

DEMOGRAPHIC DETAILS

Name.....

Address.....postcode.....

(Interviewer - show card H).

Age of respondent	Under 21	1	(72)
	21-30	2	
	31-40	3	
	41-50	4	
	51-60	5	
	Over 60	6	
Sex of respondent	Male	1	(73)
	Female	2	

(Which of the statements on this card applies to you? You need only mention the letter alongside the appropriate one: (Interviewer - show card I).

At school	1	(74)
Student	2	
Working full time (30 hrs+)	3	
Working part-time (up to 30 hrs)	4	
Unemployed	5	
Retired	6	
Housewife	7	

At what age did you finish full-time education? (Interviewer - show card J).

14 or under	1	(75)
15-16	2	
17-19	3	
20-21	4	
22 or over	5	
Still in full-time education	6	

Presence of children in household? (Multi coding allowed)

Any 0-4	1	(76)
Any 5-10	2	
Any 11-15	3	
16 years and over	4	
None of these	5	

What is: Occupation of HOH (or CWE) (if applicable).....

Skill/qualification (inc. degree/apprenticeship).....

Responsibility/Position (inc., where appropriate, no. of employees)

Relationship of HOH/CWE to Respondent..... (77,78)

27.3 Appendix H - Forest Landscape Assessment Questionnaire: Analysis of open-ended questions

2 (a) How do you think that forests and woods compare with other places for a day out?

(b) Can you give two reasons why you might sometimes choose to go to a forest or wood?

Reasons for visiting forests/ woods	First reason %	Second reason %
Peaceful, quiet	27	14
Fauna	8	12
No reason	5	18
Walking	8	6
Sheltered	3	2
Kids enjoy	4	6
Walk dog	4	3
Fresh air, smells	3	2
Scenery	4	4
Clean	1	1
Unspoilt	1	1
Outing variety	4	2
Nothing to do	4	1
Variety	7	7
Flora	6	7
Healthy, relaxing	2	3
Picnicking	2	2
Get away	3	4
Others	3	3

3(b) What do you particularly enjoy about forests at this time?

Aspect of forest enjoyed	Percentage
Colours	39
Weather	14
No preference	4
Scenic quality	5
Plant, animal life	14
Frequent wildlife	3
Quieter time	2
Falling leaves	4
Fresh air, pine smell	3
Peaceful time	2
Full bloom	3
Kids playing	1
Better walking time	2
Longer days	1
More to see and do	3
Don't know	.4
Kid's holiday	.3

6(b) Can you suggest some particular ways in which forests and woods are different?

Differences between forests and woods	First way %	Second way %
Forests large, dense	4	1
Larger	24	5
Denser	6	3
Tree variety woods	2	7
Cultivated vs natural	3	7
Wildlife concerns	1	3
More to do in forests	1	2
Forests conifers	6	4
Forests man-made	5	3
Forests owned privately	.3	1
Forests commercial	1	1
Forests quieter	1	1
Forests not man-made	.1	3
Forests spacious	.4	1
Woods spacious	1	2
Woods wilder	.3	.1
Others	1	1
No response	–	14
Smaller trees woods	–	.1

8(a) Here are ten photographs of forestry landscapes. Thinking of the one where you would most enjoy looking at the scenery, could you please put this one on the left and arrange the others in order with the one you like least over on the right.

Photograph	Most preferred					Least preferred				
	1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %	10 %
A	3	3	4	9	8	10	15	19	16	12
B	5	15	17	13	12	13	9	9	4	3
C	2	4	9	14	12	17	13	13	11	3
D	19	13	6	4	3	2	3	3	10	37
E	3	3	4	3	7	6	8	11	27	28
F	21	16	16	11	6	9	5	8	5	2
G	22	12	11	7	9	10	11	9	6	1
H	12	15	12	11	12	10	13	8	5	2
I	4	5	8	15	17	14	13	12	8	3
J	9	14	14	12	12	8	8	8	7	8

8(b) Now, please give me some reasons why you particularly like these two. (Two most preferred indicated)

Reasons for liking landscape photographs	Favourite %	2nd favourite %
Water	18	1
General scenic	14	16
Scenic, rocks, crags	2	2
Scenic water	10	8
Scenic activities	2	2
Colours	9	10
Mountains, hills	5	6
Scenic variety	9	8
Interesting scenic	2	2
Peaceful	6	4
Open space	4	4
Good walking	4	5
Like tree mix	5	3
Reflections	2	1
Natural scenery	3	3
Memory of similar place	3	2
Picnic place	1	.4
Time of year	1	1
Others	1	1

8(c) Can you also give me some reasons why you least like these two. (Two least preferred indicated)

Reasons for disliking landscape photograph	Least favourite %	2nd least favourite %
Plain	14	14
Bland, uninteresting	17	13
Barren, treeless	19	27
Dislike hills, mountains	2	3
Boring	7	5
Too flat	6	7
Dull	5	4
Untidy	.1	1
Dislike tree clump formation	2	2
Man-made	6	5
Photo criticism	1	1
Just fields, farmland	8	6
Poor walks, rides	2	3
Lacks life	.4	1
Dislike moorland	1	2
Similar to home	1	1
Too rocky, rugged	1	2
Too dense trees	4	2
Others	1	1

9. The following statements are about what forests may offer people. I will read them out and I want you to rate them in order of importance to you by using the following five-point scale where 5 is very important and 1 is not important at all.

Statement	1 Not important %	2 Slightly important %	3 Quite important %	4 Important %	5 Very important %
Peace and quiet	3	7	15	30	45
Privacy	14	16	23	29	18
Complete break from worries	8	8	18	33	33
Chance to get away from other people	11	15	27	26	22
Chance to observe wildlife	3	9	17	32	38
Healthy exercise (walking or other forms)	5	10	18	36	30
Social / family outing	13	13	24	32	18
Good for walking dogs	36	12	13	19	20
Escape from city life	10	9	18	27	36
Beautiful scenery	0	2	9	33	56
Open to everyone	5	5	12	32	45
Good for children to play	12	10	17	25	35

10. This time we will use the same kind of scale – but going from ‘disagree’ to ‘agree’. How much would you agree that each of the following describes your feelings in general when you are in/have been in forests?

Statement	1 Disagree strongly %	2 Disagree %	3 Neutral %	4 Agree %	5 Agree strongly %
If alone, worried about being alone	22	29	12	24	13
Afraid of trespassing	13	33	19	31	4
Vulnerable	16	35	17	27	5
Secure	4	20	31	38	7
Uneasy	18	46	19	15	2
Happy	1	4	12	63	20
Afraid of getting lost	16	33	19	25	6
Close to nature	1	2	12	60	26
Free to explore	1	5	11	60	23
Uplifted / revived	0	4	27	49	20
In touch with the past	7	21	35	29	8
Relaxed	1	4	9	64	22
Bored	41	47	7	3	1
Hemmed in	39	45	9	6	1

11(a) Using the same five-point scale, can you rate each of the following statements in terms of how you think that forests should appear in the landscape?

Statement	1 Disagree strongly %	2 Disagree %	3 Neutral %	4 Agree %	5 Agree strongly %
They should look inviting	0	2	8	59	31
They should blend into the landscape	1	4	8	53	34
They should have a lot of variety	1	4	14	54	28
Trees should be spaced out from each other	3	22	24	36	14
They should add colour and beauty to landscape	1	2	6	51	40
They should be a defined feature on the landscape	3	22	22	40	12
They should be on a large scale	3	26	29	31	11
They should look natural	0	1	4	50	44
They should have well-marked paths or trails	1	5	10	42	41

11(b) In the same way, can you rate the following statements in terms of how you think that trees in the forest should be managed?

Statement	1 Disagree strongly %	2 Disagree %	3 Neutral %	4 Agree %	5 Agree strongly %
They should be casual, irregularly spaced	24	1	7	14	53
They should be in orderly rows	35	43	15	6	1
They should be allowed to grow wild	4	18	14	39	25

13. I will read out the four main ways in which forests and woods in this country are used. Could you please rank them in order of importance as you see them, with one being the most important?

Forest use	Most important		Least important	
	1 %	2 %	3 %	4 %
Recreation	4	10	28	15
Timber production	4	6	12	35
Nature conservation	36	15	6	1
Scenic beauty	14	27	11	6

27.4 Appendix I - A note on the statistical methods used in this report

Most readers prefer to read the data tables in percentages and for this reason the frequency counts, which are more difficult to interpret, have not been included. The total number of cases considered in most of the tables is the full sample, i.e. $n = 799$, minus very small and variable numbers of 'missing cases' where the interviewee was unable or unwilling to answer the question or the interviewer failed to record a response.

Where the table is based on a sub-sample, the aggregate numbers have been supplied.

The value of **Chi Square** has been appended to most of the tables. In every case, it is based on the frequency count and not, of course, on the percentages.

In a few cases where the expected frequency in a cell or cells falls below 5, **Yates Correction** has been applied.

The value of Chi Square indicates the probability that deviations in the rows and/or columns are due to chance. If this probability is acceptably slight, it is appropriate to infer a 'real' association between the two variables, e.g. between age and a particular form of behaviour, such as frequency of visits to the forest.

While it is true that, other things equal, the size of p reflects the degree of relationship, the potentially unequal factor that has to be taken into account is sample size. The larger the sample the more likely Chi Square will be significant and the smaller the size of p . To overcome this, a measure of association, similar to a correlation, can be calculated. In 2×2 tables this is **Phi**. In $2 \times n$ tables it is **Cramonds V**. These are quoted for certain analyses in the present report, but the majority of tables are based on the same sample size and a comparison of Chi Square values between them seems adequate.

It is conventional to regard a Chi Square with a p value of less than .05 as significant. This means that such a difference between columns/rows could have arisen on average only 5 times in 100 by chance. The majority of tables included in this report are significant at much lower probability levels.

For the most part, only cross tabulations that reach the conventional .05 significance level are

referred to in detail. The interview contains 77 variables and the total number of combinations of two variables that this generates runs into many millions. Those selected, therefore, have to be based on plausible hypotheses. These still greatly exceed the number that can be reported and, for this reason, only the hypotheses that are confirmed (especially where these are mutually supportive) are presented in the report.

The **correlation coefficient** is generally well known; it is a measure of association between two continuous variables. It varies in size from 0 to 1 (positive r) or from 0 to -1 (negative r) where 0 indicates zero relationship and 1 or -1 indicates complete correspondence.

Another form of statistical analysis used in the survey is **factor analysis**. This is simply a way of identifying the small number of main 'factors' that appear to characterise or underlie (in some cases to 'cause') the answers given to a larger number of separate questions or 'items'.

Using the basic correlations between items, the analysis:

- (a) identifies items which appear to be related, and
- (b) rotates the data to find the optimum 'spine' of the bundle of related items, and
- (c) calculates how far out on this spine each item lies (the factor loading of the item), and
- (d) requires the investigator to label the factor from an appraisal of the items which contribute to it.

The diagrams reproduced in the report are merely a visual representation of the analysis. They show the factors and the loadings of each questionnaire item on each factor in spatial form. Only the first two, most important, factors are shown. The loading of each item on both factors is used to determine its position in the space. The further to the right on the horizontal dimension or the nearer to the top on the vertical dimension, the higher the loading, i.e. the more closely the item reflects the factor.

A further stage is the derivation of **factor scores**. Once it has been determined that a number of items 'belong together', it is legitimate to add the scores on these items to give a new 'package' score for each respondent.

To choose an example from the present study - in addition to carrying out analyses with the single variable 'feel vulnerable in the forest', which was evaluated on a five-point scale from

'strongly agree' to 'strongly disagree', we have added, for each respondent, item scores on 'feel vulnerable', 'worry about being alone', 'feel uneasy', 'feel secure' (minus value), 'fear of being lost' and 'fear of trespassing'. These together comprise the factor *vulnerable* which was differentiated empirically from the factor *uplifted*.

Multiple regression is another statistical procedure referred to in the report. This is sometimes thought of as 'modelling'. If two variables are found to be correlated, it must follow that we can make an approximate estimate of the value in one that corresponds to the value of the other, i.e. a prediction. In practice, it is necessary to distinguish a 'predictor' variable from a 'criterion' variable. For example, we have attempted to predict, using biographical and other variables, the frequency of use of forests.

A regression equation requires a weight by which the predictor variable must be multiplied to give its 'slope' and a constant addition/subtraction to bring the two scales into line. A multiple regression simply extends this procedure to include a number of predictors. Each one requires its own weighting before it is combined with the others and with a single constant to give the closest possible prediction of the criterion variable.

Analysis of variance is a technique for identifying significant differences between or (as in the present study) within sets of means. It generates an 'F ratio', the size of which determines a p level. As with Chi Square, this indicates significance at levels, according to convention, of less than .05 (i.e. likely to occur

by chance on 5 or fewer occasions out of 100).

Correspondence analysis gives a two-dimensional pictorial representation of the relationship between sets of categories. The categories themselves may be discrete, i.e. they do not need to form a continuous variable. Examples are the landscapes evaluated by the respondents and the physical attributes evaluated by the landscape architects in the present study. The cells formed by the two categories may contain, as data, mean scores (as in the present study) or frequencies, percentages or '2' scores.

Correspondence analysis produces three two-dimensional plots, showing the distribution of each of the category sets, separately, and then the two combined. The distance between any two items of a set is a measure of their similarity (correlation). However, although in the combined plot the relationship between category sets relies on the same general principle, the interpretation should be based on the 'co-ordinates' (dimensions) of the space. The main co-ordinates are likely to be vertical or horizontal.

Since we are only interested in co-ordinates that account for a substantial amount of the variance in the data, a test is included that helps us to decide which dimensions should be included in the 'interpretation' of the plot.

Each co-ordinate has a summary statistic called its '**Inertia**'. From the Inertia it is possible to calculate a Chi Squared statistic which gives the level of significance for each dimension. The amount of variance accounted for by its dimension is also calculated.

Part 5

The landscape preference study

28. Introduction

The aim of this part of the research was to explore people's preferences for landscapes presented visually. However, it marks a departure from previous studies in its attempt to address the fact that no landscape can be 'all things to all men'; preferences should be assessed against some well defined purpose. We should also aim to understand better how these landscape purposes relate to each other.

In addition, it is often argued that there is not one 'public' but many. This is, of course, a *reductio ad absurdum*, but we should at least attempt to assess the differences between some of the main parts that comprise the whole. A beginning has been made by comparing identifiable groups that are likely to have different preferences for leisure activity and aesthetic enjoyment, that is the old and young, the male and female, and the educated and less well educated.

Finally, there is little advantage in establishing visual landscape preferences if one can only finish up by pointing to a limited range of photographic examples. The next step is to elicit the more basic physical parameters of landscapes and to relate these to public preferences for different purposes. Hence, we aimed to interlock two mainly separate traditions in landscape research, that is the evaluation of physical landscapes by acknowledged 'experts' and the assessment of public perceptions - by using the former as predictors of the latter. These relatively ambitious aims called for a large data set, so that subdivision into, for example, physical attributes and preferences for different activities, would still yield dependable sub sample sizes.

A more detailed discussion of the context within previous research of the Landscape Preference Study was provided earlier, in Section 3, because of its relevance to other sections of the study.

29. The method

The method of data collection had been piloted

in a small earlier study using student subjects, (Humphrey, 1989; Lee, 1990). It was based on a **rating board** that had been developed some years ago in another research context (Lee, 1957).

The essential advantage of this device, illustrated in Figure 13, is that up to ten respondents can perform the task in parallel. Members of the public were invited to volunteer while browsing in a Forestry Commission visitor centre. In this situation they were unpressured by time, the task sounded interesting and they were generally attuned to it, so the response rate was very high - generally between 95% and 100%.

It should be noted that this sample does not represent the population at large, but only that section of it which visits forests. A comparison with the household survey data suggests that any differences are likely to be small.

Although the compelling reason for the limited catchment was budgetary, it might also be regarded as a virtue. Those who visit forests are perhaps the most important sub group to cater for and they also possess sufficiently well formulated views to approach the interview in an informed way.

Ten tables were set out at the visitor centre, not in a separate room but generally in a secluded enclave. This had the additional advantage of promoting interest in passers by. A procedure quickly evolved in which respondents did not perform the task simultaneously in groups of ten, but as they came and went, singly or in small visit groups, each receiving instructions, guidance and oversight as necessary.

Each respondent was provided with a separate board (see Figure 13) and ten colour photographs 3 in. x 2 in., each reinforced with heavy-duty card with transparent cover, and mounted semi-vertically on a small wooden stand. In all, four sets of ten landscapes (twenty distant views and twenty close views) were used in the study. These are reproduced in Figure 14, but it should be noted that there is some inevitable loss of quality and colour accuracy in the reproduction.

Figure 13 The rating board

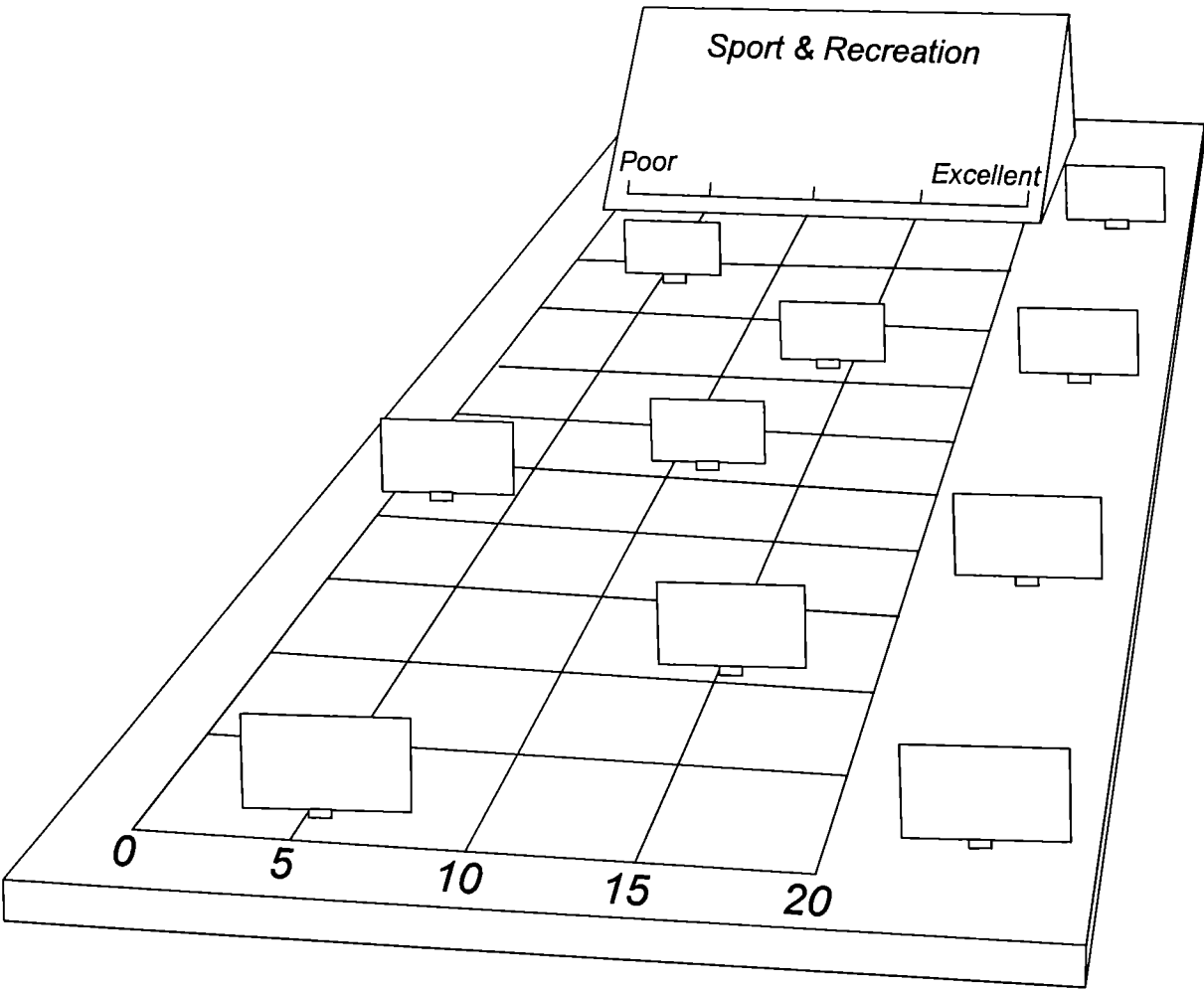


Figure 14 Distant Set 1



1



6



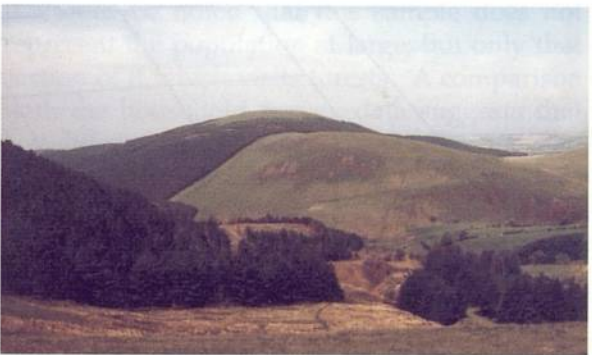
2



7



3



8



4



9



5



10

Figure 14 Distant Set 3



1



6



2



7



3



8



4



9



5



10

Figure 14 Close Set 2



1



6



2



7



3



8



4



9



5



10

Figure 14 Close Set 4



1



6



2



7



3



8



4



9



5



10

At the beginning of a session, the ten photographs are arranged randomly at the side of the board and one of the seven activity (preference) scales, Getaway, Sport/Recreation, Timber, Picnic, Walking, Wildlife and Tourism is displayed on the angled support at the top in a position that synchronises its graduations with that on the board. The respondent is asked to pick up the photographs, randomly, and to place one on each horizontal line (coloured red in the instructions to facilitate this step) in a position judged appropriate by reference to the scale description at the top. The scale and each horizontal line is graduated and numbered from 1 = 'Poor' to 20 = 'Excellent'. It was made clear in the instructions that the dimension was one of suitability for the particular activity under consideration.

As soon as more than one landscape has been placed, the rating process (i.e. assessment on scale description) can be supplemented by one of ranking (i.e. comparison of one photo with another) - and this alternation can continue throughout, each landscape being continually adjusted on its line in relation to the others, as well as to the scale descriptors, until all are judged to be 'correctly' placed.

We regard this flexibility as an extremely important feature. The more usual procedure of allocating definitive ratings in sequential order makes the quite false assumption that people have an absolute scale in their heads. In fact, human beings are extremely good at making fine comparisons but are very bad at making absolute judgements.

When all the photographs have been placed, their positions are recorded on a response sheet by reference to the graduated scale. They are removed; the scale dimension for another activity is displayed at the top; and the whole process is repeated. Most respondents completed the operation for one sub-set of ten landscapes on four activity scales. This took 20-30 minutes.

29.1 The sample

The procedure was carried out mainly at three visitor centres: Aberfoyle, Perthshire; Wyre, Herefordshire; and Grizedale, Cumbria. Unfortunately, it was not possible to rotate photo sets systematically, so there is some confounding between photo sets and centres. However, at Grizedale and Aberfoyle, where the bulk of the responses was obtained, the regional mix of visitors was considerable.

In order to carry out the task economically, a fairly steady throughput of visitors was required. At Wyre, the season began to close in and the number of visitors diminished, so the stay there was limited to about three weeks. Testing was carried out at the other centres from July until late September.

A practical difficulty arose in the final stages at Grizedale. The research assistant collected data on the first four activity dimensions from 162 respondents, in the expectation that she would then switch to the last three dimensions for a similar number. In the event, it became clear that, with the sharp seasonal fall off in visitors

Table 118 – Comparison of Grizedale and St Andrews assessments

Landscape set	Getaway			Sport/recreation			Timber			Picnic		
	Grizedale	All	Difference	Grizedale	All	Difference	Grizedale	All	Difference	Grizedale	All	Difference
1	-	-	-	-	-	-	-	-	-	-	-	-
2	13.8	13.7	.1	8.7	8.7	-	9.3	9.0	.3	13.1	12.8	.3
3	12.4	12.4	-	10.3	10.5	.2	6.2	6.0	.2	8.5	8.0	.5
4	12.0	12.2	.2	13.2	14.0	.8	13.4	13.5	.3	10.6	10.5	.1
5	11.0	11.0	-	11.4	11.7	.3	15.1	15.0	.1	10.6	11.0	.4
6	-	-	-	-	-	-	-	-	-	-	-	-
7	14.6	14.5	.1	13.2	13.0	.2	10.7	10.6	.1	16.3	16.2	.1
8	-	-	-	-	-	-	-	-	-	-	-	-
9	7.3	7.5	.2	7.1	7.1	-	9.4	9.2	.2	4.7	4.7	-
10	6.4	7.0	.6	6.5	6.7	.2	14.8	14.3	.5	4.3	4.4	.1

and the imminent closure of the centre, this could not be achieved.

Another problem was the inclusion in Set 4 of three photographs that had already been used in Set 2. This may be partially explained by the fact that they had been printed in reverse, and with some inevitable difference in colour tone.

The approach adopted to solve these two problems was to recruit a sample group, consisting mainly of students, in St Andrews. These were able to complete all seven dimensions, providing not only data on the missing three activity dimensions but also additional data for the first four dimensions, so providing a basis for comparison. Also, three new photographs were introduced to replace the ‘repeats’ in Set 4. Table 118 shows the effect on the mean Grizedale scores (N = 167) of

adding the St Andrews scores (N = 77) for the overlapping assessments, i.e. excluding the three ‘new’ photographs.

The similarity is very close indeed - none of the means differ by as much as 1.0 and the average difference is .22. This suggests that the St Andrews data, though less than ideal, can be substituted for missing data.

It is also interesting to compare the assessments of two samples (one at Grizedale and the other mainly at Grizedale but with a small number from Wyre) that assessed the same photographs, but in reverse (i.e. the repeats). This is shown in Table 119.

The differences are relatively unimportant for landscapes 2(5) and 2(4) but significant for 2(6). The reasons for this have to remain speculative,

Table 119 – Assessments of three landscapes presented in reverse

Landscape set	Getaway	Sport/recreation	Timber	Picnic
2(5)	9.9	11.4	5.4	8.4
4(6)	8.2	9.9	5.7	6.6
Difference	-1.7	-1.5	+.3	-1.8
2(6)	14.0	13.3	5.4	13.6
4(1)	9.0	9.7	3.1	9.2
Difference	-5.0	-3.6	-2.3	-4.4
2(4)	11.2	12.8	3.6	11.1
4(8)	9.4	11.0	14.5	9.7
Difference	-1.8	-1.8	+.9	-1.4

Table 120 – Sample totals by location

Landscape set	Location	No. of subjects	Dimension		Assessments	
1	Aberfoyle	571	(x4)	2,284	(x10)	22.840
2	Wyre and Grizedale	477	(x4)	1,908	(x10)	19.080
3	Grizedale	262	(x4)	1,048	(x10)	10.480
4	Grizedale	162	(x4)	648	(x7)	4.536
4	St Andrews	77	(x7)	539	(x10)	5.390
Total		1,549		6,427		62.326

but it is clear from the photographs themselves that 2(5) and 2(4) have marginally better colour tone than their reverse equivalents. It is notable that the 'Timber' dimension is the only one that 'improves' at the second showing - suggesting that the differences, though small, are a genuine reflection of the change in colour tone.

The third landscape, 2(6), has two major changes at the second showing. It is much colder in tone and less 'natural'. It is also the only one with a distinct land-form gradient - so that the reversal changes the general impression. The first of these changes could be sufficient to account for its lower ratings, but the second remains an interesting possibility.

In the final analysis, data for these three photos were removed from Set 4 and replaced by data on new photographs provided by the St Andrews sample on all seven activity dimensions.

The sub-sample totals are shown in Table 120.

29.2 Analyses

The aim of the several analyses of the landscape preference scores has been:

- 1. To determine whether different landscapes are consistently preferred for particular activities or purposes.
- 2. To measure the extent to which these preferences can be 'explained' in terms of the physical elements or attributes of the landscapes.
- 3. In pursuit of (2), to assess the agreement between landscape architects when assessing these physical attributes.

A summary of the various steps in the process of analysis is given below:

- i. Correspondence analysis of each of the four sets of ten landscape photographs. The plots give a visual representation in two-dimensional space of the relationships between:
 - (a) Landscapes
 - (b) Activity dimensions
 - (c) Both combined

In addition, correspondence analysis identifies a number of 'co-ordinates' (dimensions) in the vertical or horizontal plane, together with their statistical significance.

A co-ordinate enables us to move from descriptions based on the relationships between single points, i.e. the photographs or activities, to descriptions based on general trends in the data.

- ii. Means and standard deviations of the assessments made by six landscape architects of the forty landscape photographs on ten physical attributes.
- iii. Intercorrelational matrices of the landscape architects' ratings of the forty photographs on ten physical attributes.
- iv. Multiple regression analyses, showing:

(a) The correlations between ten physical attributes and public preferences on seven dimensions of activity for two sets of twenty landscape photographs.

(b) Multiple R's and Betas for the *prediction* of *mean* public preferences on each of the seven activity dimensions for (i) twenty distant landscapes, (ii) twenty close landscapes.

- v. Correspondence analysis, as in (i), showing the relationships between the landscape architects' assessments of the physical attributes of the forty landscape photographs.
- vi. Superimposition (on the correspondence analysis plots of physical attributes (v)) of the preference ratings given to each of the landscape photographs depicted there.

30. Correspondence analysis of activities and preferences

30.1 Background

The purpose of correspondence analysis is to provide a pictorial representation of a set of data, in this case a table of mean scores.

In the first analysis, we consider the mean score given to each of ten landscapes for their suitability in respect of seven different activities. These means form a matrix table in which the landscapes are rows and the activities are columns. The table of means is reproduced in Table 132 on pages 158 and 159.

Three two-dimensional plots are produced. The first locates each of the activities (columns) in space in such a way that similarity equals proximity. This is an optimal resolution. The

second plot shows a similar spatial representation of the landscapes (rows). Again, if landscapes have been assessed as similar by the respondents they are placed close together and vice versa.

Finally, the third plot shows the two previous ones superimposed. It is important to note that the comparisons of the distances between points (activities) within Plot 1 and between points (landscapes) within Plot 2 directly represent similarities. But these relationships do not apply in the same way when associating activities with landscapes in Plot 3; in the joint plot such distances are relative. Thus, when we wish to examine the relationship between one row with one column, we should only do this by examining its relationship with the entire column space. This means, in the present case, that a particular landscape should be viewed in relation to more general activity regions or co-ordinates rather than to any specific activity.

Correspondence analysis produces two-dimensional plots by default. However, in some cases it may be that the use of three dimensions makes it possible to fit the data to a comprehensible geometric pattern. Information is provided to help in deciding the dimensionality of the solution. A table is provided which reports the amount of variance that each dimension accounts for. Obviously, a perfect fit is when the solution accounts for 100% of the variance, but this will only occur when the number of dimensions = $n-1$ (where n is the number of columns). We are only interested in dimensions that account for significant amounts of variance and a test is provided to help us decide how many dimensions should be interpreted. Each dimension has a summary statistic called its 'Inertia'. It is possible from the Inertia to calculate a Chi-squared statistic which gives a level of significance for each dimension. The amount of variance accounted for by each dimension is also calculated.

The combined plots only are reproduced as Figures 15-20 here in the text, for convenience.

30.2 Landscape Set 1 (distant)

There is a strong horizontal co-ordinate that extends from C7 *Tourism* to C3 *Timber*. It is clearly concerned with scenic image and is a reminder (though one that is perhaps hardly needed) that a balance needs to be struck in landscape planning between scenic qualities and the economics of production.

The other activities lie somewhere near the centre of this dimension and are not differentiated very highly from each other; *Sport/recreation* is nearest to the *Timber* end of the co-ordinate and *Getaway* to the *Tourism* end.

There is a second, vertical co-ordinate, also significant, that extends from *Getaway* to *Picnic*. This is concerned with the various forms of recreation and corresponds to the dimension identified in the household survey from 'Wilderness' to 'Day Visitor'.

Landscape 1 scores highest on the *Tourism/Timber* dimension. It depicts remote moorland and upland with a strongly edge-defined coniferous plantation. Landscapes 7, 8 and 9 follow closely (9 probably because it has little aspect or variety but a high density of trees). It is interesting that the visible trees are mainly broadleaved, although respondents may have inferred that these were being used merely as edge planting. Landscapes 7 and 8 are examples of coniferous planting that appears unnatural and perhaps intrusive.

At the other (*Tourism*) end of this co-ordinate, landscape 10 is a high mountainous area that appears to be above the tree line and too rocky to be fertile - hence quite unsuitable for timber production. It is, of course, the quintessential *Getaway* landscape, remote and inaccessible. However, in addition to projecting a suitable image for *Tourism* at the end of the *Tourism/Timber* dimension, it is also at the extreme end of the *Recreation* co-ordinate. Close to it are landscapes 2 and 3 which, interestingly, are the most heavily forested. Both, although predominantly coniferous, show great diversity of colour and, like 10, give an impression of remoteness and naturalness. This is deceptive, for both have experienced extensive human intrusion in the form of planting.

The opposite, *Picnic*, end of the *Recreation* co-ordinate has the autumn coloured beechwood (6) as its prime example. This should probably have been more appropriately placed in a close landscape set and the same could be said of its near neighbour (4).

Landscape 5, the flattish green field, and the least popular photograph in the entire set, is also at this end of the *Picnic/Getaway* co-ordinate. This seems less plausible. The most likely explanation is that its position has been determined more by the fact that its highest

score is on *Sport/Recreation* and its lowest, in fact the lowest for this activity, is *Tourism*.

30.3 Landscape Set 3 (distant)

The same horizontal co-ordinate, relating to *Timber*, is evident in Set 3 as in Set 1. *Getaway* is again near the end of this co-ordinate, but *Tourism*, previously at the extreme, has moved into a different position for Set 3 it is now about midway on the co-ordinate. It will be noticed that there is relatively little differentiation towards the centre of this horizontal co-ordinate.

The second, vertical co-ordinate of *Recreation* in Set 3 again (as in Set 1) has *Picnic* at one pole, but *Tourism* has moved from one extreme to the other. The reason becomes clear when

we examine the landscapes themselves. Landscapes 7 and 8 have been assessed by our respondents as very high on both *Tourism* image and on *Picnic*. In Set 1, there was no synchrony in any of the landscapes. Landscapes 4, 5 and 6 were judged very suitable for *Picnic* but completely unsuitable for *Tourism*, while the reverse applied to 1 and 10.

The two plots would probably have given identical results except for a distortion introduced into Set 3 by Landscape 4, the barren moorland. This is so different from other landscapes that it dominates the lower half of the plot. It is seen as unsuitable for *all* the activities. The effect is strong enough to change the pole position on the vertical dimension of the combined plot.

Preferred landscapes (R) for seven activities (C)
(Distant sets 1 and 3)

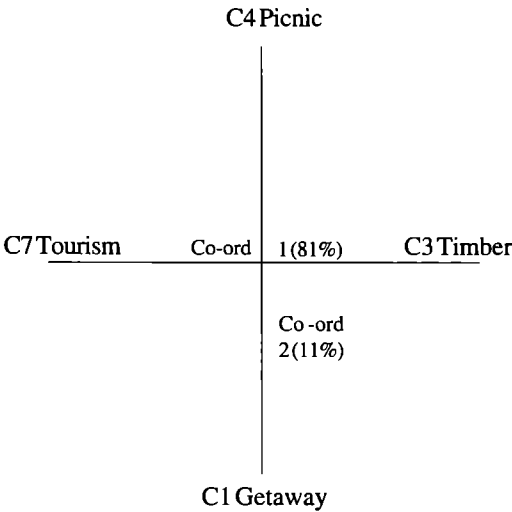
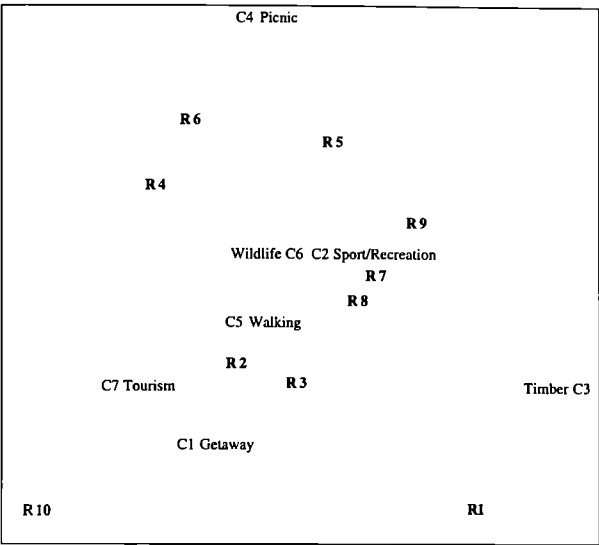


Figure 15 Distant set 1

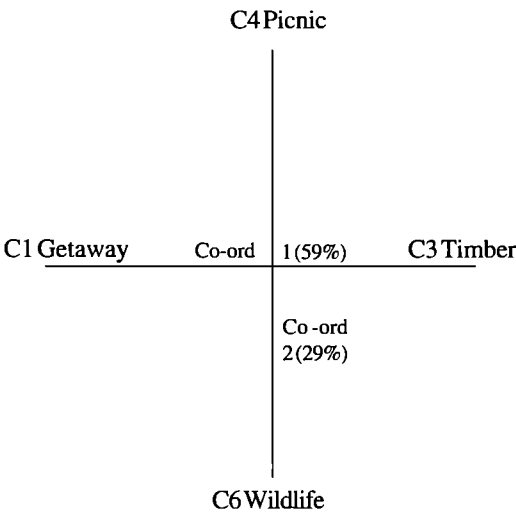
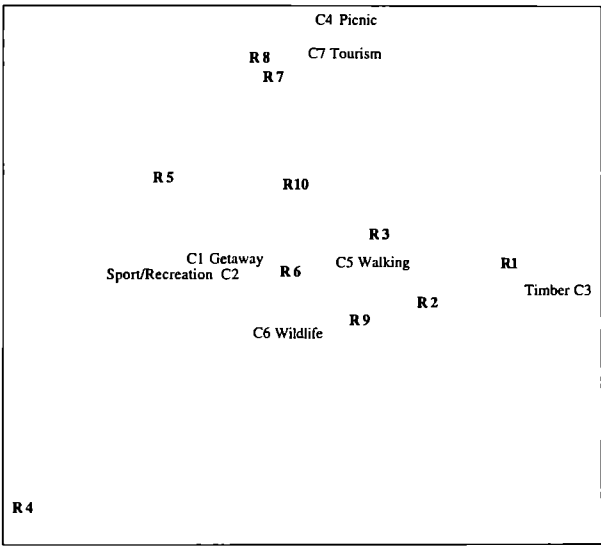


Figure 16 Distant set 3

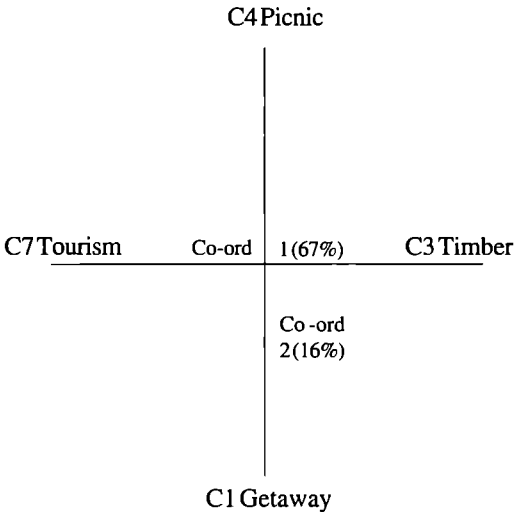
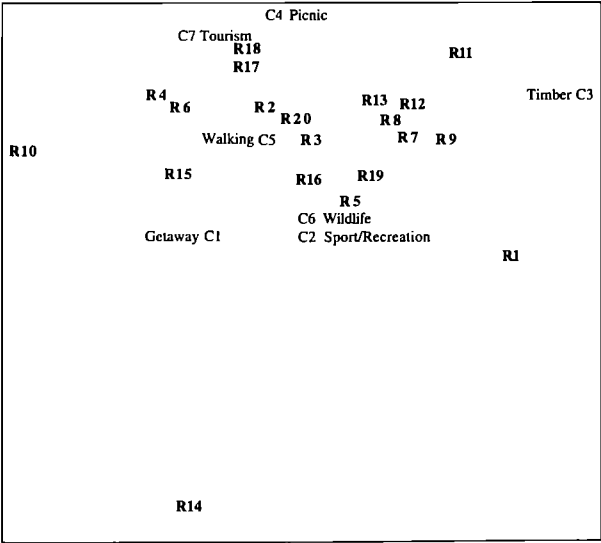


Figure 17 Distant sets 1 (1-10) & 3 (11-20)

30.4 Landscape sets 2 and 4 (close)

Turning to the close landscapes, there is such close similarity between the plots of the activity variates that it is fully justifiable to discuss them as one. The fact that they are mirror images of each other is not a matter of any consequence; a minor difference could tip this balance.

The first co-ordinate is again the horizontal one dominated by timber production. At the opposite pole for the close landscapes, lies *Picnic*, hence *Picnic/Timber* describes this co-ordinate. The most suitable landscapes in Set 2 for timber production are, in order: 1, which shows an open road flanked by a heavy belt of mature conifers and very little else; 9, which has a background of plantation conifers and an extended foreground littered with slash; and 7, which is a dense plantation divided by a wide access, presumably designed for harvesting purposes. It is of some interest that landscape 10, which shows the same very dense coniferous planting, is rated at the opposite, *Picnic*, end of the co-ordinate. The explanation is probably the inclusion of water - a rocky stream runs through the centre of the picture.

In Set 4, landscape 10 is a bleak silhouette of conifers and 9 is a similar landscape but with broadleaved species, a very heavy undergrowth and no clearing of the kind generally favoured by picnickers. This is the major difference from 1, which lies at the opposite (*Picnic*) pole of this co-ordinate. Although the trees appear to be conifers, they are mature, well spaced and have a clearing carpeted with leaves in the foreground.

The second co-ordinate is again a *Recreation* one and in both Sets 2 and 4 it extends from *Walking* and *Picnic* to *Wildlife*.

The only small difference between the two sets is the spacing of *Getaway* and *Tourism*. In Set 2, although similarly placed, they are quite wide apart. In Set 4, they are in almost identical positions.

The location of the individual landscapes on the plots provide some further insight. In Set 2, landscapes 7 and 8 both have prominent, well marked paths receding into the distance as the apparent explanation for their high *Walking* rating; landscape 3 is at the opposite extreme, the *Wildlife* pole. It is a wholly non-symmetric layout of broadleaved trees with no paths and with thick undergrowth. Nonetheless, it is not particularly dense and the sunlight obviously

penetrates quite well. It is probably the perfect example of what our survey respondents spontaneously called 'natural'. This end of the co-ordinate also has *Getaway* quality and the positioning here of what is probably the most densely-wooded conifer landscape, 10, suggests that conifers are not incompatible with the sense of solitude, or indeed with *Wildlife*. This suggestion is further strengthened by the position of 9, which is also clearly a conifer plantation and was rated high on the *Timber* dimension.

In Set 2, the *Walking* end is similarly characterised by landscape 8, which has a prominent road and pathway; and by 4 and 5, both coniferous but with a wide walking space opening a vista through to the distance. Landscapes 9 and 3, at the *Wildlife* end, have very dense undergrowth (unconducive to walking) and are both broadleaved. There are no paths or, indeed, signs of easy access. They are, again, 'natural'.

In both sets, it is worth noting that the midway position on this *Recreation* co-ordinate, where we find the *Tourism* image, is also the location for 12, the romantic bluebell glade, and for 2, the unusual limestone clearing with a fringe of mixed species, casually planted.

30.5 Summary: Correspondence analysis of activities

These results address one of the main questions raised by the research. Ordinary members of the public can obviously discriminate between landscapes on a 'nice scenery' dimension but can they also assess their suitability for a variety of different purposes - and do so consistently and from photographs? Strong doubts were expressed on these points in the expert seminars.

The answer appears to be positive:

1. A highly significant dimension is consistently discriminated between landscapes suitable for timber production and all other purposes.
2. *Tourism* is at the opposite pole from *Timber* for distant landscapes and *Picnic* for close landscapes, and this seems plausible.
3. In both distant and close landscapes there is a second dimension on which the recreational activities are discriminated. This accounts for a much smaller proportion of the overall variance, but is also highly significant.

Preferred landscapes (R) for seven activities (C)
(Close sets 2 and 4)

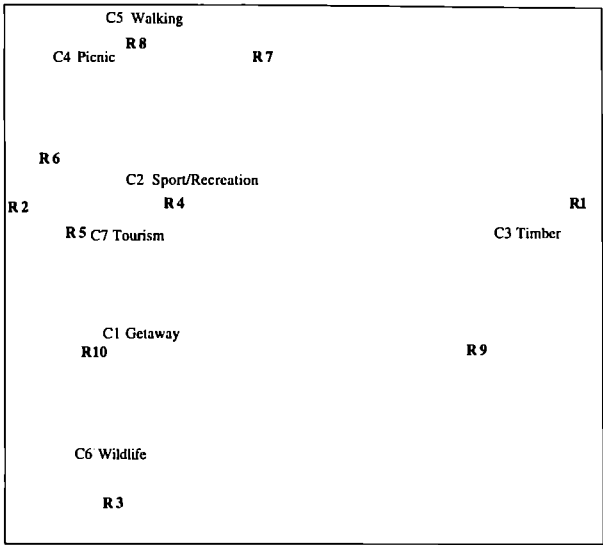


Figure 18 Close set 2

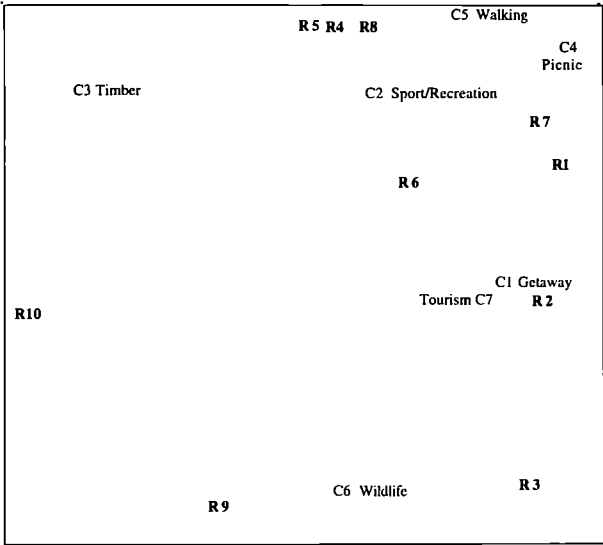
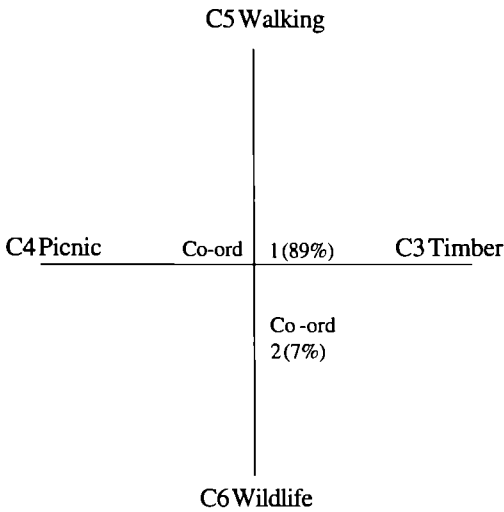


Figure 19 Close set 4

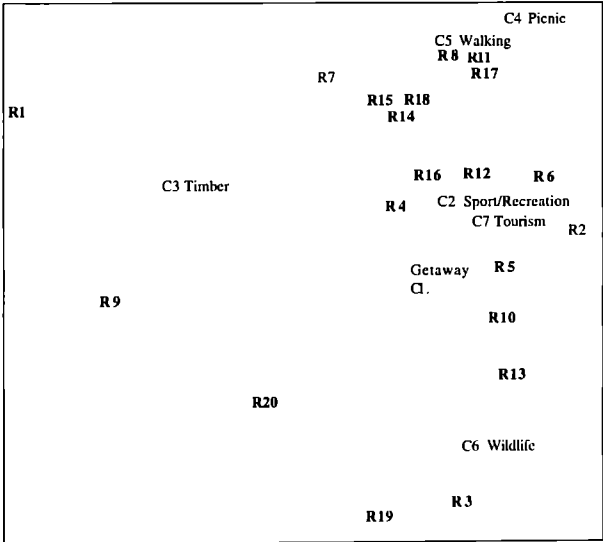
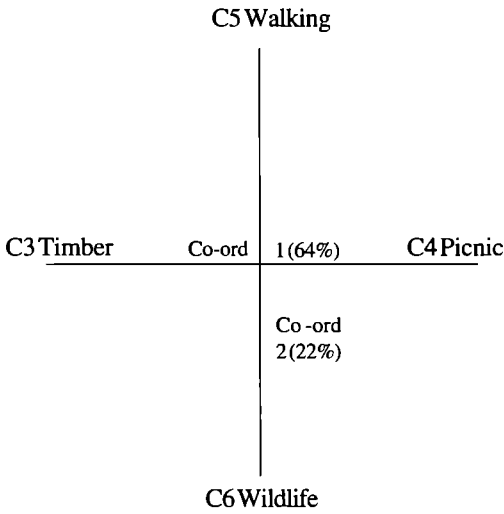
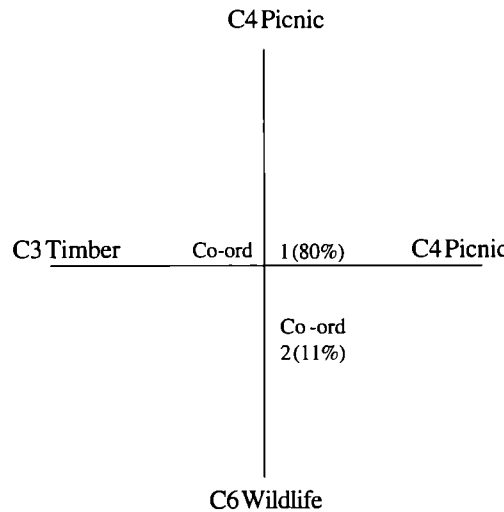


Figure 20 Close sets 2 (1-10) & 4 (11-20)



4. *Picnic* is at one pole, whereas *Getaway* is at the other for distant landscapes and *Wildlife* for close landscapes. *Walking* is usually near the centre of both co-ordinates.

5. The exact ordering on these dimensions is bound to be unstable in small samples of landscapes, where one or two prominent examples can exert undue influence. However, in the close landscapes, two completely different sets of ten landscapes, assessed by different respondents, produce almost identical underlying structures.

31. Measurement of the physical attributes of landscape

Seven landscape architects were asked to assess the twenty distant and twenty close photographs on ten physical attributes of landscape, using a scale from 1-5 and assessing each set of twenty separately.

The attributes were described as follows:

1. **Scale** - In scale = 1; Out of scale = 5
(Whether the size of the woodland, the proportions of woodland and open ground, and the proportions of different component areas of the woodland reflect the scale of the landscape.)
2. **Shape** - Organic/natural = 1; Geometric = 5
(Whether the shape of the woodland (external edge shape) and the shape of internal components of the woodland is organic or geometric.)
3. **Broadleaved/conifer** - Broadleaved = 1; Conifer = 5
(The visual impression of whether the woodland is predominantly broadleaved or coniferous.)
4. **Overall diversity** - Diverse = 1; Uniform = 5
5. **Species diversity** - Diverse = 1; Uniform = 5
6. **Age diversity** - Diverse = 1; Uniform = 5
7. **Colour diversity** - Diverse = 1; Uniform = 5
(Diversity is the number and degree of different features in the landscape. A score is given for overall diversity and also for certain components of that overall diversity, namely diversity of species of tree, diversity of ages of trees, diversity of colour in the whole view.)
8. **Spacing/density** - Little open space = 1; Much open space = 5

(In distant views, the impression of close planting, closed canopy and an absence of open space contribute to a low score. In internal views, the impression of openness, whether between trees or groups of trees, or through the trees gives a high score.)

9. **Human intrusion** - Little intrusion = 1; Much intrusion = 5

(The extent to which an impression is gained of the hand of man having been present. Thus, discordant man-made features indicate greater intrusion than features which blend, even though they may be equally man-made.)

10. **Genius loci** - Strong = 1; Weak = 5

(The spirit of the place or its strength of character. That which gives the landscape its unique character.)

These are the measures more usually applied by the Forestry Commission's landscape architects. However, it should be noted that they are measures, strictly speaking, of 'forestry in the landscape' and not of the landscape as a whole. In some cases, forestry was deliberately absent from the landscapes and these examples could not be measured.

It will be observed that the attributes, although mainly physical, are also evaluative (good/bad) in terms of the accepted value system of forestry landscape architecture.

Genius loci, which is almost wholly aesthetic, is the most prominent example. A low score on the dimensions implies 'good', except in the case of *Spacing/density*, where the scale is reversed.

Intercorrelations were run between the seven architects and the resulting matrices are reproduced in Tables 121 and 122. In the discussion that follows, the architects have been given code names: Abe; Bee; Cie; Doe; Eve; Fry; Guy. The means of the seven architects' assessments on each of the ten dimensions are shown in Tables 123 and 124. The mean ratings of each landscape architect on each physical attribute, standard deviations and intercorrelations between landscape architects are also shown in Tables 121 and 122 for distant and close landscapes respectively. Tables 123 and 124 also show the mean ratings (i.e. the average across seven landscape architects) given to twenty distant and twenty close landscapes. The standard deviations are also shown. These indicate the degree of consistency across the judges.

Table 121 – Means, standard deviations and intercorrelations between landscape architects on assessment of 20 distant landscapes on 10 physical attributes

1. SCALE - (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	15	2.0000	1.1952
Bee	15	3.1333	.8338
Cie	15	2.2667	.9612
Doe	15	2.2667	1.0998
Eve	15	2.1333	.7432
Fry	15	2.3333	.8997
Guy	15	2.8667	.8338

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.000	.5734	.6218*	.3260	.6433*	.5314	-.0717
.5734	1.0000	.5764	.0364	.6608*	.5078	.0274
.6218*	.5764	1.0000	.0631	.6466*	.2203	-.1307
.3260	.0364	.0631	1.0000	.1282	.2647	-.2700
.6433*	.6608*	.6466*	.1282	1.0000	.3561	.0307
.5314	.5078	.2203	.2647	.3561	1.0000	-.0317
-.0717	.0274	-.1307	-.2700	.0307	-.0317	1.0000

Minimum pairwise N of cases: 15 1-tailed Signif: * -.01 **-.001

2. SHAPE (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	16	2.4375	1.4592
Bee	16	3.1250	1.0247
Cie	16	2.4375	1.2093
Doe	16	2.8125	1.3769
Eve	16	2.8750	1.2583
Fry	16	2.8125	1.1087
Guy	16	3.1250	1.2583

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.7636**	.6399*	.8067**	.6853*	.7134**	.6581
.7636**	1.0000	.5447	.6320*	.5817*	.6675*	.4524
.6399*	.5447	.5447	.6320*	.6955*	.6619*	.6188*
.8067**	.6320*	.6531*	1.0000	.4473	.7615*	.5147
.6853*	.5817*	.6955*	.4473	1.0000	.4122	.3895
.7134**	.6675*	.6619*	.7615**	.4122	1.0000	.5914*
.6581*	.4524	.6188*	.5147	.3895	.5914*	1.0000

Minimum pairwise N of cases: 16 1-tailed Signif: * -.01 **-.001

Table 121- Contd.

3. BROADLEAVED / CONIFER (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	18	3.5000	1.0432
Bee	18	3.1111	.9003
Cie	18	3.2778	1.0741
Doe	18	3.3333	1.1882
Eve	18	3.7222	1.0178
Fry	18	3.2778	1.1275
Guy	18	3.8333	1.2005

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.8769**	.9188**	.8068**	.9141**	.8252**	.8690**
.8769**	1.000	.9396**	.8982**	.8702**	.8950**	.8890**
.9188**	.9396**	1.0000	.8911**	.8819**	.9040**	.9048**
.8068**	.8982**	.8911**	1.0000	.8593**	.8928**	.8660**
.9141**	.8702**	.8819**	.8593**	1.0000	.8401**	.9227**
.8252**	.8950**	.9040**	.8928**	.8401**	1.0000	.9054**
.8690**	.8890**	.9048**	.8660**	.9227**	.9054**	1.0000

Minimum pairwise N of cases: 18 1-tailed Signif: * -.01 **-.001

4. OVERALL DENSITY (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	20	2.7500	1.1180
Bee	20	3.1000	.7881
Cie	20	2.7000	.9787
Doe	20	2.1500	.8751
Eve	20	2.5000	1.3179
Fry	20	2.6000	1.0463
Guy	20	2.8500	.9881

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.5077	.6974**	.5245**	.7680**	.6299*	.6789**
.5077	1.0000	.5868	.4350	.5068	.3064	.6962**
.6974**	.5868*	1.0000	.5469*	.8569*	.6476*	.7130**
.5245*	.4350	.5469*	1.0000	.7530**	.6438*	.6970**
.7680**	.5068	.8569**	.7530**	1.0000	.7252**	.7477**
.6299*	.3064	.6476*	.6438*	.7252**	1.0000	.7535**
.6789**	.6962**	.7130**	.6970**	.7477**	.7535**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 121- Contd.

5. SPECIES DIVERSITY (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	18	3.0556	1.3048
Bee	18	3.1111	.7584
Cie	18	3.0000	1.2367
Doe	18	3.0000	1.3720
Eve	18	3.1667	1.3827
Fry	18	2.9444	1.0556
Guy	18	3.5000	1.0981

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.000	.8850**	.8749**	.7886**	.9075**	.8138**	.7595**
.8850**	1.0000	.8153**	.7349**	.7667**	.8164**	.7063**
.8479**	.8153**	1.0000	.7974**	.8600**	.7209**	.7797**
.7886**	.7349**	.7974**	1.0000	.8682**	.6905**	.7028**
.9075**	.7667**	.8600**	.8682**	1.0000	.8127**	.8717**
.8138**	.8164**	.7209**	.6905**	.8117**	1.0000	.6850**
.7595**	.7063**	.7797**	.7028**	.8717**	.6850**	1.0000

Minimum pairwise N of cases: 18 1-tailed Signif: * -.01 **-.001

6. AGE DIVERSITY (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	18	3.111	1.1827
Bee	18	3.111	.8324
Cie	18	3.2778	.8264
Doe	18	3.6667	.9075
Eve	18	3.3333	.9701
Fry	18	3.7778	.7321
Guy	18	3.6667	1.1882

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.8831**	.6286*	.7491**	.6836**	.7096**	.7395**
.8831**	1.0000	.5511*	.5971*	.6071*	.8152**	.7534**
.6286*	.5511*	1.0000	.6013*	.6848**	.3997	.2796
.7491**	.5971*	.6013*	1.0000	.7350**	.3247	.3819
.6836**	.6071*	.6848**	.7350**	1.0000	.4417	.4082
.7096**	.8152**	.3997	.3247	.4417	1.0000	.7890**
.7395**	.7534**	.2796	.3819	.4082	.7890**	1.0000

Minimum pairwise N of cases: 18 1-tailed Signif: * -.01 **-.001

Table 121- Contd.

7. COLOUR DIVERSITY (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	20	2.6000	1.1425
Bee	20	3.3500	.6708
Cie	20	2.2500	.9665
Doe	20	2.4500	1.0990
Eve	20	2.7000	1.0809
Fry	20	3.1000	1.0712
Guy	20	2.7500	1.0699

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.000	.1923	.7149**	.5281*	.4944	.3785	.4306
.1923*	1.0000	.6697**	.7746**	.4428	.8277**	.7883**
.7149**	.6697**	1.0000	.7804**	.6297*	.7880**	.8270**
.5281*	.7746**	.7804**	1.0000	.6956**	.8092**	.6378*
.4944	.4428	.6297*	.6956**	1.0000	.6637**	.4323
.3785	.8277**	.7880**	.8092**	.6637**	1.0000	.8037**
.4306	.7883**	.8270**	.6378*	.4323	.8037**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

8. SPACING / DENSITY (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	17	2.3529	1.1147
Bee	17	3.3529	.6063
Cie	17	3.0588	1.2485
Doe	17	2.7647	1.0914
Eve	17	2.4706	.7174
Fry	17	3.0588	1.0290
Guy	17	2.9412	1.4349

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	-.1033	.3883	.6376*	.4045	.1987	.4827
-.1033	1.0000	.3011	-.2444	-.1183	.3653	-.1902
.3883	.3011	1.0000	.2401	.3858	.6296	.4556
.6376*	-.2444	.2401	1.0000	.4695	.0687	.4695
.4045	-.1183	.3858	.4695	1.0000	.2988	.6357*
.1987	.3653	.6296*	.0687	.2988	1.0000	.1718
.4827	-.1902	.4556	.4695	.6357*	.1718	1.0000

Minimum pairwise N of cases: 17 1-tailed Signif: * -.01 **-.001

Table 121- Contd.

9. HUMAN INTRUSION (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	20	1.3500	.9881
Bee	20	3.7000	1.0311
Cie	20	2.2500	.9665
Doe	20	2.5000	1.2773
Eve	20	2.7500	1.1180
Fry	20	2.4000	.9403
Guy	20	2.5500	1.2763

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	-.2531	-.0964	.5213*	.2263	-.1020	-.1607
-.2531	1.0000	.7129**	.3197	.6163*	.7274**	.6519**
-.0964	.7129*	1.0000	.4903	.5479*	.8686**	.9066**
.5213*	.3197	.4903	1.0000	.4975	.4382	.5004
.2263	.6163*	.5479*	.4975	1.0000	.5507*	.3965
-.1020	.7274**	.8686**	.4382	.5507*	1.0000	.7718**
-.1607	.6519**	.9066**	.5004	.3965	.7718**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

10. GENIUS LOCI (Distant)

Variable	Cases	Mean	Standard Deviations
Abe	20	2.7000	1.3803
Bee	20	3.6000	.8826
Cie	20	3.1000	1.1653
Doe	20	2.5500	1.1910
Eve	20	2.2000	1.0052
Fry	20	2.2000	.9105
Guy	20	2.7200	1.0866

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.5876*	.4777	.5859*	.6903**	.6073*	.5874*
.5876*	1.0000	.5527*	.5708*	.4509	.4585	.6159*
.4777	.5527*	1.0000	.8305**	.4313	.6201*	.7828**
.5859*	.5708*	.8305**	1.0000	.6946**	.7645**	.8664**
.6903**	.4509	.4313	.6946**	1.0000	.6901**	.7607**
.6073*	.4585	.6201*	.7645**	.6901**	1.0000	.7084**
.5874*	.6159*	.7828**	.8664**	.7607**	.7084**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 122 – Means, standard deviations and intercorrelations between landscape architects on assessment of 20 Close Landscapes on 10 Physical Attributes

1. SCALE (Close)

Variable	Cases	Mean	Standard Deviations
Abe	11	3.0000	1.4832
Bee	11	3.0909	1.3003
Cie	11	2.6364	1.1201
Doe	11	2.4545	1.0357
Eve	11	2.5455	1.1282
Fry	11	2.7273	.7862
Guy	11	2.9091	1.8141

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.6740	.5417	.6509	.4781	.5145	.5575
.6740	1.0000	.3683	.5602	.7127*	.7113*	.6397
.5417	.3683	1.0000	.6739	.7266*	.4439	.4250
.6509	.5602	.6739	1.0000	.6224	.6587	.6629
.4781	.7127*	.7266*	.6224	1.0000	.5227	.6619
.5145	.7113*	.4439	.6587	.5227	1.0000	.6820
.5575	.6397	.4250	.6629	.6619	.6820	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

2. SHAPE (Close)

Variable	Cases	Mean	Standard Deviations
Abe	7	3.4286	1.7182
Bee	7	3.2857	1.4960
Cie	7	2.5714	1.3973
Doe	7	3.0000	1.6330
Eve	7	2.4286	1.6183
Fry	7	3.2857	1.7043
Guy	7	3.0000	1.9149

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.9170*	.9223*	.8910*	.7620	.8618*	.9118*
.9170*	1.0000	.9454**	.9551**	.9047*	.9431**	.9309*
.9223*	.9454**	1.0000	.9496**	.9055*	.9698**	.9967**
.8910*	.9551**	.9496**	1.0000	.9460**	.9581**	.9594**
.7620	.9047*	.9055*	.9460**	1.0000	.9150*	.9143*
.8618*	.9431**	.9698**	.9581**	.9150*	1.0000	.9703**
.9118*	.9309*	.9967**	.9594**	.9143*	.9703**	1.0000

Minimum pairwise N of cases: 7 1-tailed Signif: * -.01 **-.001

Table 122- Contd.

3. BROADLEAVED / CONIFER (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	3.2000	1.8238
Bee	20	3.0500	1.5381
Cie	20	2.9000	1.7137
Doe	20	3.1000	1.7741
Eve	20	3.2000	1.8238
Fry	20	3.1500	1.8144
Guy	20	3.1000	1.8610

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.000	.9343**	.6803**	.7255**	.9884**	.7062**	.7381**
.9343**	1.0000	.7009**	.7117**	.9156**	.6950**	.6969**
.6803**	.7009**	1.0000	.9556**	.6803**	.9530**	.9605**
.7255**	.7117**	.9556**	1.0000	.6929**	.9598**	.9693**
.9684**	.9156**	.6803**	.6929**	1.0000	.7380**	.7381**
.7062**	.6950**	.9530**	.9598**	.7380**	1.0000	.9773**
.7381**	.6969**	.9605**	.9693**	.7381**	.9773**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

4. OVERALL DIVERSITY (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	3.5000	.6070
Bee	20	3.5000	.6070
Cie	20	3.0500	.6863
Doe	20	2.5000	.8885
Eve	20	2.8500	1.0400
Fry	20	3.3000	.9787
Guy	20	3.3000	.9234

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.5714*	.6949**	.1952	.5419*	.3544	.3756
.5714*	1.0000	.6949**	.1952	.4586	.6202*	.3756
.6949**	.6949**	1.0000	.5610*	.5272*	.6817**	.5564*
.1952	.1952	.5610	1.0000	.5981	.6658	.5132
.5419*	.4586	.5272	.5981*	1.0000	.6670**	.6522**
.3544	.6202*	.6817**	.6658**	.6670**	1.0000	.5940*
.3756	.3756	.5564*	.5132	.6522**	.5940*	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 122- Contd.

5. SPECIES DIVERSITY (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	4.0500	.9987
Bee	20	3.7500	.7164
Cie	20	4.1500	.6708
Doe	20	3.8500	1.1821
Eve	20	3.8500	1.2258
Fry	20	3.9500	1.0990
Guy	20	4.1000	1.0208

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.4598	.5381*	.4971	.6943**	.4340	.7176**
.4598	1.0000	.7393**	.7614**	.7942**	.4512	.6118*
.5381*	.7393**	1.0000	.5608*	.7329**	.5818*	.5918*
.4971	.7614**	.5608*	1.0000	.6011*	.2370	.6237*
.6943**	.7942**	.7329**	.6011*	1.0000	.6192*	.7697**
.4340	.4512	.5818*	.2370	.6192	1.0000	.4738
.7176**	.6118*	.5918*	.6237*	.7697**	.4738	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

6. AGE DIVERSITY (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	4.1000	1.0712
Bee	20	3.2000	.8335
Cie	20	3.7500	.9105
Doe	20	3.4500	1.2763
Eve	20	3.3000	1.1286
Fry	20	3.8500	1.0400
Guy	20	3.8000	1.0563

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.3891	.7825**	.5428*	.5834*	.6756**	.6698**
.3891	1.0000	.4855	.3067	.4924	.2793	.5261*
.7825**	.4855	1.0000	.6001*	.7427**	.7365**	.7114**
.5428*	.3067	.6001	1.0000	.5225*	.6087*	.5778*
.5834*	.4924	.7427**	.5225*	1.0000	.3991	.7152**
.6756**	.2793	.7365**	.6087*	.3991	1.0000	.4983
.6698**	.5261*	.7114**	.5778*	.7152**	.4983	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 122- Contd.

7. COLOUR DIVERSITY (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	3.3000	.7327
Bee	20	3.5500	.5104
Cie	20	2.7000	.5712
Doe	20	3.2000	.6959
Eve	20	2.8500	.7452
Fry	20	3.5500	.6048
Guy	20	3.3000	.5712

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.2392	.2263	.2890	.3760	-.2732	.4024
.2392	1.0000	.2347	.1185	.2283	.3325	-.0542
.2263	.2347	1.0000	.4237	.1360	.0457	.4516
.2890	.1185	.4237	1.0000	.4669	.2251	.3707
.3760	.2283	.1360	.4669	1.0000	.1826	.2349
-.2732	.3325	.0457	.2251	.1927	1.0000	.1066
.4024	-.0542	.4516	.3707	.2349	.1066	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

8. SPACING DIVERSITY (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	2.5000	1.1921
Bee	20	2.7000	.5712
Cie	20	3.1500	1.0894
Doe	20	3.4000	.9947
Eve	20	3.0000	1.0260
Fry	20	2.3000	.5712
Guy	20	3.0000	1.3377

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	-.0773	.4255	.4882	.3012	.0773	.2970
-.0773	1.0000	.2453	.1297	.3592	.2903	.4133
.4255	.2453	1.0000	.7674**	.6121*	.6005*	.7945**
.4882	.1297	.7674**	1.0000	.5673*	.5187*	.7120**
.3012	.3592	.6121*	.5673*	1.0000	.5388*	.5752*
.0773	.2903	.6005*	.5187*	.5388*	1.0000	.6199*
.2970	.4133	.7945**	.7120**	.5752*	.6199*	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 122- Contd.

9. HUMAN INTRUSION (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	1.2000	.6156
Bee	20	3.2500	.9665
Cie	20	2.0500	1.4318
Doe	20	2.3500	1.4965
Eve	20	2.5000	.8885
Fry	20	2.4500	.10501
Guy	20	2.2500	1.3717

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.2654	.2269	.3771	.1925	.1791	.0623
.2654	1.0000	.7511**	.8096**	.8886**	.8168**	.7046**
.2269	.7511**	1.0000	.9003**	.8067**	.7544**	.9044**
.3771	.8096**	.9003**	1.0000	.8114**	.7988**	.8012**
.1925	.8886**	.8067**	.8114**	1.0000	.7615**	.7989**
.1791	.8168**	.7544**	.7988**	.7615**	1.0000	.7582**
.0623	.7046**	.9044**	.8012**	.7989**	.7582**	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

10. GENIUS LOCI (Close)

Variable	Cases	Mean	Standard Deviations
Abe	20	3.9500	1.0501
Bee	20	3.9000	.7881
Cie	20	3.4500	1.2344
Doe	20	3.0000	.9733
Eve	20	2.5000	1.0000
Fry	20	3.3000	.7327
Guy	20	2.6500	1.2680

Correlations						
Abe	Bee	Cie	Doe	Eve	Fry	Guy
1.0000	.7569**	.5461*	.4635	.4762	.4310	.5000
.7569**	1.0000	.8062**	.6862**	.6011*	.6016*	.7532**
.5461*	.8062**	1.0000	.7885**	.5756*	.6576**	.8121**
.4635	.6862**	.7885**	1.0000	.3244	.6642**	.7249**
.4762	.6011*	.5756*	.3244	1.0000	.3592	.3943
.4310	.6016*	.6576**	.6642**	.3592	1.0000	.6288*
.5000	.7532**	.8121**	.7249**	.3943	.6288*	1.0000

Minimum pairwise N of cases: 20 1-tailed Signif: * -.01 **-.001

Table 123 – Physical attributes of distant landscapes: means and standard deviations of ratings - Photo Sets 1 and 3

Photo Set (No.)		Genius loci	Human intrusion	Spacing/ density	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved/ conifer	Shape	Scale
1 (1)	Mean	3.7	3.4	1.3	4.1	5.0	5.0	4.3	5.0	5.0	3.0
	SD	.7	1.5	.7	.9	0	0	.2	0	0	.9
1 (2)	Mean	2.3	3.1	3.0	2.0	1.8	1.6	1.3	3.3	2.4	2.4
	SD	.7	1.2	.6	.8	.7	.5	.5	.5	.5	1.0
1 (3)	Mean	2.1	1.4	3.3	1.3	3.6	1.8	2.0	3.4	1.6	1.8
	SD	1.0	.8	.5	.5	.5	.7	1.1	.5	1.1	.7
1 (4)	Mean	1.3	3.0	3.1	1.8	3.1	3.0	1.7	3.3	1.8	2.1
	SD	.7	1.4	.9	.9	.7	0	.5	.5	1.0	.7
1 (5)	Mean	4.0	3.1	0	4.0	3.7	3.6	3.6	3.4	4.1	3.4
	SD	.8	1.3	0	0	.5	.8	.5	.5	.9	1.0
1 (6)	Mean	2.0	1.3	3.6	2.3	2.7	4.4	2.8	1.0	0	0
	SD	1.1	.7	.9	.9	1.2	.8	.9	0	0	0
1 (7)	Mean	3.1	2.4	2.3	3.1	3.4	3.6	2.8	4.1	2.1	2.3
	SD	.4	1.0	1.3	.7	.5	.5	.7	.4	.4	1.2
1 (8)	Mean	3.8	3.6	2.0	3.4	4.6	4.7	3.7	4.7	4.1	3.1
	SD	.4	1.1	1.1	.8	.5	.5	.5	.5	.4	.9
1 (9)	Mean	3.7	2.3	2.0	2.3	3.0	1.7	2.6	2.0	2.7	0
	SD	.9	.7	.8	.5	.8	.7	.9	0	.7	0
1 (10)	Mean	3.4	1.1	0	3.3	0	0	3.4	0	0	0
	SD	.5	.4	0	.7	0	0	.5	0	0	0
3 (1)	Mean	3.8	2.6	2.1	3.4	3.7	2.8	2.8	3.4	2.6	3.3
	SD	.7	.9	.6	.5	.5	.4	.4	.5	.9	.7
3 (2)	Mean	2.8	2.8	3.6	2.7	3.0	2.7	2.3	3.4	1.7	1.8
	SD	.7	.9	.9	.7	.8	.5	.5	.5	1.1	.9
3 (3)	Mean	3.0	3.7	3.4	3.3	2.8	3.4	2.7	3.0	4.1	2.7
	SD	.8	1.3	.7	.7	.7	.5	.5	0	.4	.7
3 (4)	Mean	1.8	1.1	0	4.1	0	0	4.3	0	0	0
	SD	.9	.4	0	.4	0	0	.7	0	0	0
3 (5)	Mean	3.7	2.7	3.4	1.8	3.4	3.0	2.4	2.0	0	1.8
	SD	.7	1.4	1.5	.9	.8	.6	.5	.8	0	.4
3 (6)	Mean	3.7	2.6	3.0	2.7	4.7	4.7	2.8	4.8	3.0	2.4
	SD	.5	1.1	1.0	.7	.5	.5	.7	.4	1.1	.9
3 (7)	Mean	1.6	1.8	2.7	1.8	3.0	2.0	1.8	3.7	2.3	0
	SD	.8	.7	.5	.7	.8	0	.7	.5	.7	0
3 (8)	Mean	2.6	2.6	3.6	2.8	2.6	3.0	1.8	3.8	2.0	1.8
	SD	1.3	1.1	1.3	.9	.5	.8	.7	.7	.8	1.0
3 (9)	Mean	2.8	2.3	3.0	2.1	3.0	2.0	1.8	3.0	2.3	2.6
	SD	.7	.7	.8	.9	.6	.6	.9	0	.5	.8
3 (10)	Mean	2.3	2.8	3.0	2.0	4.0	2.7	1.8	4.1	2.7	1.6
	SD	1.5	1.0	.6	.6	.6	.5	.7	.4	.7	.5

Table 124 – Physical attributes of close landscapes: means and standard deviations of ratings - Photo Sets 2 and 4

Photo Set (No.)		Genius loci	Human intrusion	Spacing/ density	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved/ conifer	Shape	Scale
2 (1)	Mean	4.6	3.8	2.0	3.3	5.0	4.8	4.4	4.7	4.1	3.1
	SD	.8	1.5	1.4	.7	.4	.4	.5	.7	.9	.9
2 (2)	Mean	1.7	1.4	4.3	2.4	2.3	2.6	2.0	3.4	1.0	1.6
	SD	.7	.5	.9	.8	.5	.8	.8	.5	0	.5
2 (3)	Mean	3.6	1.4	2.1	4.0	3.1	3.7	3.4	1.1	0	0
	SD	.9	.5	.4	.6	1.0	1.1	1.0	.4	0	0
2 (4)	Mean	3.7	2.7	3.3	3.0	3.0	3.0	2.6	3.1	0	2.6
	SD	.9	.9	.7	.8	.8	.6	.8	.7	0	1.0
2 (5)	Mean	3.3	1.8	3.4	3.1	2.5	3.0	2.8	1.4	0	2.7
	SD	.5	.9	.8	.4	.8	.8	.7	.5	0	1.4
2 (6)	Mean	2.1	2.0	2.3	3.6	3.1	4.1	3.1	1.5	0	0
	SD	1.2	1.5	.5	.5	1.2	.7	.7	1.5	0	0
2 (7)	Mean	4.0	3.4	2.4	3.7	4.5	4.8	4.3	5.0	4.5	3.8
	SD	1.1	1.4	1.3	.5	.8	.4	.5	0	1.1	1.3
2 (8)	Mean	3.5	3.4	4.0	3.0	3.7	4.6	2.8	4.8	2.7	1.4
	SD	.8	.5	.8	.6	.7	.5	1.0	.4	1.1	1.0
2 (9)	Mean	4.4	3.7	2.5	3.1	4.5	4.8	3.4	4.8	4.1	3.5
	SD	.8	1.3	1.1	.7	.5	.4	.8	.4	1.4	.5
2 (10)	Mean	2.5	1.7	2.0	3.3	3.8	2.8	2.1	3.5	1.4	3.4
	SD	.7	.5	.5	.5	.9	.7	.4	.5	.7	1.6
4 (1)	Mean	2.4	1.6	2.8	2.8	3.7	3.7	2.8	3.6	0	0
	SD	1.2	.5	.9	.9	1.1	.7	.7	.8	0	0
4 (2)	Mean	2.6	1.8	2.8	3.0	4.1	4.4	3.3	2.7	0	0
	SD	1.0	.9	.9	.6	1.2	.5	.5	2.1	0	0
4 (3)	Mean	2.7	1.3	3.1	3.0	2.6	4.0	2.8	1.6	0	0
	SD	.7	.5	1.0	.8	1.6	1.0	1.5	1.5	0	0
4 (4)	Mean	3.0	2.6	3.4	3.1	3.7	4.3	2.3	4.0	2.0	1.8
	SD	1.0	1.3	1.4	.7	.9	.5	.5	1.4	1.6	1.5
4 (5)	Mean	3.3	1.8	3.0	3.0	4.3	4.5	3.7	3.1	0	0
	SD	1.1	.9	.8	.6	.7	.5	.2	1.5	0	0
4 (6)	Mean	3.5	3.0	2.8	3.1	4.0	4.3	3.0	4.3	0	2.0
	SD	1.0	1.0	.4	.7	.6	.5	.7	1.5	0	1.1
4 (7)	Mean	3.3	2.0	3.0	3.1	3.8	4.1	3.3	1.0	0	0
	SD	.7	1.1	.6	.7	.7	1.0	.5	0	0	0
4 (8)	Mean	3.3	3.3	2.8	3.3	3.1	2.8	3.0	1.7	0	1.6
	SD	.5	1.7	1.5	.7	.7	1.3	1.1	.7	0	.8
4 (9)	Mean	3.4	1.4	2.3	3.0	3.7	4.1	3.6	1.0	0	0
	SD	.7	.8	.8	.9	1.0	.5	.7	.5	0	0
4 (10)	Mean	4.1	1.6	2.6	3.8	3.7	4.3	3.7	5.0	0	0
	SD	.9	.8	1.0	.4	1.1	.7	.5	0	0	0

31.1 Assessments

Scale

Only fifteen of the twenty photographs were suitable for assessment on this parameter. It is clear that the concept of *Scale*, insofar as it applies to distant landscapes, is highly equivocal. For example, there is virtually zero correlation between the assessments made by Doe and those of all other architects. Worse still, Guy actually shows a majority of inverse correlations with his/her colleagues. Fry also has very low agreement on three of the five relationships. It is clear that careful consideration needs to be given to the definition of this dimension, followed by discussion between the architects on how it should be applied.

The position is substantially better when the close landscapes are assessed, but although the seven architects all perform at about the same level, the correlations are no more than moderate. Only eleven of the close landscapes could be appropriately assessed on this scale.

It may be that there are differences in interpretation of this dimension. For example, what is it that is in or out of scale? There can be some features that are in scale relative to each other or relative to land form, while other features are out of scale with them or with some other aspect. If both possibilities exist in one photograph, different judges, while using the same measuring rod, may be applying it to different features. Some way of confining the judgement to the dominant features or encouraging the pooling of assessments of more than one feature is perhaps needed.

Shape

The concept of *Shape* fared somewhat better, with correlations averaging about .6. Both Eve and Guy had two rather low correlations each. Again, there was much more agreement over the close landscapes and the intercorrelations are mostly in the .9 region, which is very satisfactory. There were no obvious deflections from this standard. It should be noted, however, that only sixteen of the distant and seven of the close landscapes were suitable for this assessment.

A similar comment may be made about '*Shape*' as about '*Scale*'. It is likely that some distant landscapes include more than one forest feature that varies in shape and some judges may focus

on the dominant one, others may attempt a synthesis.

Broadleaved/conifer

The *Broadleaved/conifer* dimension was consistently judged and the correlations are satisfactorily in the .8 - .9 region, so far as the distant landscapes are concerned.

In this case, the close landscapes fare rather less well and there are quite a number of correlations in the .7 region and even some .6s. This is surprising because it might be expected that identification and proportioning would be easier at close range. On the whole, though, they can be regarded as reasonably satisfactory.

Overall diversity

Correlations for this are by no means strong. Correlations for the distant landscape are varied but on average they appear to sink to the .5 - .6 range. Bee has two rather low intercorrelations (.306 with Fry and .435 with Doe). It would appear that Bee, exceptionally in this case, is the architect with the lowest level of agreement with colleagues.

Turning to the close landscapes, the position here is quite disturbing, with Doe showing two intercorrelations at .195 with Abe and Bee and, among the others, a sprinkling of correlations in the .3 area and many no higher than .5. It should be noted that this scale produces a set of rather low standard deviations between landscapes; most close landscapes are judged as moderately diverse.

Species diversity

In the distant landscapes, *Species diversity* appears to have been judged with a high level of agreement and all the correlations are significant at the .001 level. The average is about .75 and there are no deviants.

There is much less agreement in the close landscapes. It has to be noted that it takes two to make a low correlation and it is not always easy to detect which one is deviating from the rest. Indeed, it may sometimes be that an architect could justly claim to be the only one in step; but in cases of this kind it must be argued, *per contra*, that consensual agreement on the definition of an attribute is even more important than whether that attribute is measuring exactly what is intended by its verbal definition. After

all, we do not yet know how far these attributes are predictors of scenic beauty or other overall qualities. In the present case, it has to be pointed out that Fry has four of his/her six possible intercorrelations with others at a level less than .5 and that his/her lowest (.237 with Doe) implies that he/she is out of line (on this dimension) because Doe shows reasonably high agreement with other colleagues.

Age diversity

The correlations are only moderate in the distant set. Both Guy and Fry have half their correlations in the .3 - .4 region within a general context that averages about .7. It might be expected from the extra visual detail that correlations would be higher for the closer landscapes. In fact, they are much more varied, but it has to be said that in this case Bee is obviously using different criteria and has only one of his/her six intercorrelations above the .5 level. Fry, to a lesser extent, also shows rather low agreement with colleagues. The average intercorrelation is probably in the region of .6.

Returning to the contrast between close and distant landscapes, it is notable that Bee's deviation from the norm on the close landscapes does not extend to the distant ones, where all his/her six correlations are significant (only one is significant in the close set).

Colour diversity

In the distant landscapes, the position is reasonably satisfactory, with many of the correlations in the .7 - .8 region. However, in this case, it is Abe who is clearly out of line. For example, Fry clearly has a string of highly significant correlations with all colleagues except Abe, and the same can be said of Bee. The correlations between Abe and Bee, Eve, Fry and Guy are all below .5, so there is clearly a different mode of evaluation at work. To a lesser extent, Eve is also somewhat out of line.

Impressions of *Colour diversity* within the close landscape set are so consistently low that one would have to say there is virtually no agreement between architects on this dimension. There is not a single significant correlation throughout and the average must be in the .2 - .3 region, with Fry and Abe having the distinction of a negative correlation (-.273). One possible explanation that might be offered is that some are judging the *relative* and others the *absolute* diversity, the latter taking into consideration the greater diversity endemic to a

more distant view. It is clear from the mean scores that the close landscapes are indeed judged to be significantly more uniform than the distant landscapes. Also, the standard deviations are lower (the lowest of all sets), implying that it is very difficult to discriminate between the close landscapes on this dimension.

Before leaving the important attributes of diversity, it is worth commenting on another possible source of variation between assessments. It seems likely that some architects are judging artistic impression while others may be using the concept in the statistical sense. In the simplest case, where there are two predominant colours, say green and yellow, the highest diversity in the statistical sense would require 50:50. An artistic impression would probably favour 70:30 or 80:20. Similarly, in the case of many differing hues from the spectrum, high diversity in the statistical sense would require equal representation throughout the range, while artistic impression would favour blocks of colour unevenly distributed.

Spacing/density

In the distant landscapes, the agreement between the landscape architects on *Spacing/density* is again disappointing. There is considerable diversity in the correlation levels, but the average must be in the region of no more than .3 - .4. Bee is the most significant deviant, with no fewer than four of his/her six intercorrelations being negative. This is all the more surprising when it might have been supposed that the criterion *little open space/much open space* would be judged relatively objectively.

As would be expected, the results are more consistent for the close landscapes. Five out of the seven architects have a strong sprinkling of significant intercorrelations with each other around the average of .7. The exceptions in this case are Abe and Bee, none of whose intercorrelations rises above .5. They are clearly using a different criterion.

Human intrusion

In the distant landscapes, there is again one architect who appears to be quite seriously out of line. This is Abe, who has four of his/her six intercorrelations that are negative. It is interesting in this case that the only moderate correlation between Abe and others is with Doe (.521), and on this particular criterion, Doe shows substantially lower correlations with his/her colleagues than usual. Fry, Bee, Cie and

Guy all seem to have reasonable levels of agreement with each other.

The reason for Abe’s deviation becomes clear from closer inspection of the data. In 85% of the landscapes he/she has awarded 1 (i.e. no human intrusion) and his/her mean score is 1.35. This suggests an interpretation of intrusion as human figures or man-made artefacts; the others have clearly included evidence of human landscaping.

In the close landscapes the agreement is very much higher with average correlations at the satisfactory level of .8. Again, however, as in the distant landscapes, Abe is markedly out of line. This confirms that he/she was approaching this particular evaluation using an entirely different measuring rod.

His/her highest correlation is with Doe at .377. All the intercorrelations between the six other architects on this criterion are significant at the .001 level.

Genius loci

The position with this attribute, so far as the distant landscapes are concerned, is one of relative consistency, with none of the architects noticeably out of line. However, the general level is at an average of about .6 and this is not particularly encouraging. Doe and Guy have the highest intercorrelations with others and, although not seriously divergent, Abe has the least agreement.

A similar picture can be seen from the matrix for the close landscapes, although the general level of intercorrelation is higher. Eve, four of whose correlations are below .5, shows the lowest level

of agreement, but he/she is followed closely by Abe. The level of agreement among the remaining five architects is reasonably high.

31.2 Correction for coarse grouping

There is an encouraging footnote that can be added to this section. In computing a Pearson correlation, it is known that the estimate is lowered to some degree if only a small number of intervals is used for each variable. In the present case, we were limited to a scale from 1 - 5 and it has been recommended that some correction should be made where the number is less than 10. This is sometimes called the *correction for coarse grouping* and it is necessary because the small number of intervals inflates the standard deviations and thus lowers the correlation coefficient.

Since it would be unjustifiably laborious to apply the correction to all twenty matrices in the present series, we include in Table 125 the corrected figures for correlations computed from variables with only five intervals, calculated from .100 to .950. It will be seen that the higher correlations benefit most from the correction.

The situation or special context wherein correlations occur have to be taken into consideration and the comparisons between correlations are often more meaningful than the absolute levels. Most of the coefficients in this study indicate a higher level of consensus between judgements of abstract qualities than is normally observed in other, similar situations. (For example, assessments of management skills by senior managers, or of pupils’ general ability or ‘I.Q.’ by school teachers, produce rather low intercorrelations.)

Table 125 – Coefficients of correlation corrected for coarse grouping (five intervals on each variable)

Correlations			
Uncorrected	Corrected	Uncorrected	Corrected
.100	.112	.550	.617
.150	.168	.600	.673
.200	.224	.650	.729
.250	.280	.700	.785
.300	.337	.750	.842
.350	.393	.800	.897
.400	.449	.850	.954
.450	.505	.900	1.000
.500	.561	.950	1.000

In landscape architecture, it is encouraging that some of the attributes can clearly be quantified to a very satisfactory degree and others to a useful degree. Having said this, the apparent lack of agreement (although partially relieved by the correction for coarse grouping) on some of the physical attributes needs to be addressed because it is on the consensual judgement of these professionals that the developing culture of landscape architecture within the Forestry Commission and elsewhere depends.

It may be suggested that the best way of achieving greater consensus is by systematic measurement and feedback, followed by discussion of the results. The example quoted above in respect of *Human intrusion* is perhaps the clearest evidence that consistency could be increased by an agreement to include (or exclude) evidence of *Human intrusion* in the forestry planting, in addition to the presence of people or houses etc in the landscape.

Agreement between judges, as measured by intercorrelation, is normally termed *reliability* and it has to be distinguished from *validity*, which is agreement between the judges' estimates and some independent criterion of the 'real' or the 'actual'. Estimates of *Broadleaved/conifer*, for example, might be compared with a direct count, *Colour diversity* with a spectral analysis. What should be noted, however, is that validity depends on reliability. A validity coefficient cannot be higher than the reliability of the predictor. In simple terms, if landscape architects had zero correlations between their judgements of, say, colour diversity, their average judgement would be of

little value as a measure of this quality - for although any one of them might be 'correct' in his/her judgement, there would be no way of knowing which one.

This applies equally whether the criterion to be predicted (the 'real' or 'actual') is a wholly physical or a wholly aesthetic one. In the present study, as pointed out earlier, the architects are probably assessing a blend of the two. The nearest we can approach to an independent criterion for validation purposes is the public's evaluation and it is some confirmation of this reasoning that, as will be seen later, the low agreement between architects' assessment of colour diversity in close landscapes is reflected in very weak prediction of the public's appreciation, using mean scores on this particular attribute.

31.3 Intercorrelations between mean ratings of physical attributes

Tables 126 and 127 show the intercorrelations between the architects' mean ratings of the ten physical attributes. The negative signs on *Spacing* arise because the 'good' end of this scale, i.e. open spacing, was inverted.

Probably the most notable feature of the two matrices is that the various diversity measures, 'colour', 'age', 'species' and 'overall' are quite highly correlated with each other and also with *Shape*. In practical terms, this means that some of the measures are redundant; including them will not increase the likelihood that the combined measures will tell us in advance what is a 'good' landscape.

Table 126 – Distant landscapes: Intercorrelations between mean ratings on ten physical landscape attributes

	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale
Loci	.397	-.468	.493	.416	.382	.447	.191	.566	.516
Intrusion		-.210	.196	.225	.280	-.029	.381	.488	.298
Spacing			-.505	-.476	-.263	-.567	-.447	-.526	-.624
Colour				.330	.588	.856	.367	.670	.662
Age					.661	.564	.622	.545	.190
Species						.669	.351	.652	.383
Diversity							.237	.703	.577
Broadleaved/conifer								.269	.179
Shape									.679

N.B. Correlations with spacing are negative because this attribute was scaled in reverse order, i.e. 1 = little open space, 5 = much open space.

Table 127 – Close landscapes: Intercorrelations between ratings on ten physical landscape attributes

	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale
Loci	.620	-.350	.439	.581	.571	.691	.388	.456	.364
Intrusion		-.060	.100	.545	.397	.325	.567	.718	.672
Spacing			-.668	-.504	-.271	-.561	.068	-.144	-.072
Colour				.206	.254	.507	-.008	.127	.022
Age					.752	.659	.564	.567	.268
Species						.693	.423	.496	-.057
Diversity							.153	.341	-.010
Broadleaved/conifer								.649	.480
Shape									.696

31.4 A preparatory study

Before the final set of forty photographs were selected, a preliminary assessment of nine physical attributes was made by six of the seven landscape architects on no fewer than 100 photographs. Although they were thoroughly familiar with the attribute dimensions, this was a considerable undertaking. Eight of the attributes were the same as those used later. *Scale* replaced *Afforestation* and *Genius loci* was added.

Predictably, in view of the size of the task, the correlations are on the whole lower than in the more focused study reported above, although they follow the same general pattern. One particular point of interest is that, in this case, the correlations between each architect's assessment and the mean of all architects is included. (There is a minor inflation of these coefficients due to the inclusion of each architect's own score in the mean score as well as that of others.)

These latter correlations vary from .141 to .980, but the large majority lie in the range from .700 to .900.

Some architects have consistently higher correlations with the mean assessment (the one we take to be nearer 'correct' than any single one). Cie is probably highest in this respect, followed by Doe.

31.5 Summary

The extent to which each landscape architect's judgements are based on evaluative or physical

criteria probably accounts for much of the variation between them, where it occurs in the present exercise. In this study, it will be noted that no attempt has been made to elicit the *preferences* of the landscape architects. They have been asked only to assess physical parameters but it is possible that, in doing so, they have been partially influenced by their aesthetic judgements.

The tradition within which they practice generally requires them to judge the elements of artistic impression and to communicate with others using this metric. However, this has to be translated at some stage into trees on the ground, so both aesthetic and physical scales must be implicit. In our terms, when assessing *Space* or *Broadleaved/conifer*, it is possible either to attempt to represent the physical proportions or to scale the aesthetic impression made by different proportions. These are different and if variously used by architects the intercorrelations between them will be reduced.

Before going further, we should perhaps remind ourselves why we are attempting this set of quantitative measurements. It is to determine whether the public's functional and aesthetic preferences for different forestry landscapes can be 'explained' in terms of the physical attributes usually used in landscape planning. If so, it would be possible to design new landscapes and to make decisions about the relative quality of existing ones in conformity with these preferences. This is not to pre-judge in any way the extent to which public preferences should be weighed against expert judgement in the planning process. This depends on political values.

32. The relationship between physical attributes and public preferences: multiple regression

The next step in our analysis is to explore the relationships between the physical attributes and the public's preferences for different landscapes. The model for this is multiple regression. This gives a formula by which the closest approximation to public preferences can be obtained from a combination of predictors', i.e. physical attributes.

The correlation coefficient between a single physical attribute and a set of preferences tells us how well it will predict when considered by itself. These correlations between the ten predictors' attributes and the seven different sets of preferences are shown in Tables 129 and 131 for distant and close landscapes respectively.

When the predictors are combined together, their predictive power does not increase in a simple additive fashion; the enhancement depends on the extent to which they overlap (intercorrelate) with each other. For example, we would expect that *Age diversity* is measuring something that is already rather closely related to *Overall diversity* or *Colour diversity*. Hence, adding these scores provides a smaller increase in prediction than is provided by, say, *Human intrusion*, which is likely to make a unique, even if not large, contribution.

These complex interrelationships between predictors are taken into account in a multiple regression equation, by deriving weighting factors for each one, which have the effect of optimising the overall prediction.

The weights (by which each attribute score has to be multiplied before it is aggregated into the overall score) are conventionally termed 'B weights'. However, since each of the predictor scales may have different means and standard deviations, they are converted into 'standard scores', enabling the B weights to be re-expressed as Beta weights. This is equivalent to converting each physical attribute scale into a common currency, so making it easier to compare one with another.

Broadly, the size of Beta is an indication of the *relative importance* of each physical attribute in predicting public preference. However, with a combined set, the determination of each one's unique contribution is quite complicated. Any statement about one predictor variable is

contingent upon the others in the equation.

In the present study we are fortunate to have a total of fifteen regression equations predicting similar preference scales, so that comparisons between the Betas in different equations can add to our understanding.

The final output of the equation is the Multiple R, which can be interpreted in the same way as an ordinary correlation coefficient. Also, in the same way, R Square tells us the percentage of the total variance in the preference scale that can be 'explained' or accounted for by the physical attributes.

The Adjusted R Square tells us how much of the variance would be explained if we were to generalise from the present sample of data to the population or universe from which it was derived. The quite large reduction reflects the apparent smallness of the samples in the present study (N = 20) but is extremely conservative because our analysis is based on twenty highly stable mean scores for each landscape, derived from much larger samples in every case.

A final point of explanation is that each regression equation includes a 'constant'. This is sometimes called the 'intercept' and it is necessary in order to bring the aggregated predictor scale into line (i.e. with the same theoretical zero point) with the criterion, i.e. the preference scale.

The need for this can readily be seen from the fact that there is a sum of ten physical attributes, each scaled from 1 - 5, being used to predict a single preference score on a scale from 1 - 20.

The correlations between each of the physical attributes and the seven scales of public preferences for distant and close landscapes are shown in Tables 129 and 131. These tables show the multiple Rs in the final column. The Beta weights are shown in Tables 128 and 130 respectively.

The distant landscape set includes in the final row an eighth measure of public preference, i.e. the *Best picture* measure derived from the social survey as distinct from the visitor centre data.

Before proceeding to a discussion of individual regressions, it should be pointed out that we have used a method which includes all available predictors in each equation so that the relative importance of each can be compared.

But it should be borne in mind that the same high level of prediction could be obtained by a stepwise procedure in which the predictors are added one at a time, beginning with the likely

best, until there is no further enhancement of the Multiple R. This would show, in the present case, that three or at most four of the physical attributes are sufficient to reach this level.

Table 128 – Multiple regression of physical attributes on public preferences: betas for distant landscapes

	Genius loci	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale	Constant
Getaway	.292	.790	-.203	-.210	.080	-.523	1.655	-.382	-.763	.113	-23.108
Sport	.595	.351	-.334	-.917	-.443	-.348	2.159	.073	-.391	-.033	-20.737
Timber	.023	-.162	-.456	-.552	-.474	-.044	1.353	.120	.161	-.224	-15.854
Picnic	.344	.403	-.330	-.698	-.324	-.669	2.175	.251	-.233	-.130	-24.370
Walking	.265	.464	-.199	-.481	-.027	-.687	1.851	-.067	-.396	-.031	-20.957
Wildlife	.275	.412	-.314	-.206	-.495	-.543	1.642	.224	-.201	-.201	-21.214
Tourism	.128	.517	-.094	-.321	.490	-.575	1.033	-.478	-.434	-.012	-26.403
Best picture	.310	.361	.269	-.129	-.088	-.616	1.394	.062	.026	-.109	-17.613

N.B. The signs have been reversed in this table so that an increase in preference is equivalent to an increase in the physical attribute. (The reversal is not needed for *Best picture* or for *Space*.)

Table 129 – Correlations between physical attributes and public preferences: distant landscapes

	Genius loci	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale	Multiple r
Getaway	.582	.161	.327	.541	.167	.202	.605	-.123	.377	.413	.910
Sport	.614	-.096	.281	.515	.236	.261	.697	-.164	.373	.337	.951
Timber	-.096	-.459	-.230	.178	-.045	.129	.354	-.331	.030	-.106	.750
Picnic	.503	.047	.374	.597	.313	.207	.734	.059	.414	.324	.920
Walking	.475	-.048	.376	.501	.261	.652	.652	-.038	.353	.318	.863
Wildlife	.499	.128	.323	.723	.163	.246	.700	.071	.506	.415	.898
Tourism	.582	.134	.455	.673	.389	.344	.768	.048	.539	.450	.917
Best picture	.627	.173	.446	.729	.364	.329	.777	.138	.632	.485	.929
Mean r (excluding Timber)	.555	.071	.369	.611	.270	.246	.705	-.001	.455	.392	.913

N.B. The signs have been reversed in this table so that an increase in preference is equivalent to an increase in the physical attribute. (The reversal is not needed for *Best picture* or for *Space*.)

Table 130 – Multiple regression of physical attributes on public preferences: betas for close landscapes

	Genius loci	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale	Constant
Getaway	.246	-.217	1.419	-.966	-1.746	.063	.279	1.017	1.359	-.673	-49.52
Sport	.160	-.539	1.575	-1.154	-1.349	.190	.164	1.007	.989	-.480	-51.15
Timber	-.778	-.139	.357	-.254	-.893	.262	.103	-.022	.357	.130	-27.25
Picnic	.419	-.419	1.476	-.854	-1.754	.298	.119	.946	.952	-.292	-55.01
Walking	.490	-.599	1.699	-1.084	-1.621	.284	-.105	.923	1.038	-.396	-67.04
Wildlife	-.218	-.075	1.295	-.882	-1.275	-.013	.119	1.024	1.610	-.819	-45.73
Tourism	.303	-.266	1.509	-.986	-1.843	.303	-.052	.949	1.420	-.568	-59.79

N.B. The signs have been reversed in this table so that an increase in preference is equivalent to an increase in the physical attribute. (The reversal is not needed for *Space*.)

Table 131 – Correlations between physical attributes and public preferences: close landscapes

	Genius loci	Human intrusion	Spacing	Colour diversity	Age diversity	Species diversity	Overall diversity	Broadleaved /conifer	Shape	Scale	Multiple r
Getaway	.573	.319	.252	.051	.343	.261	.540	.594	.594	.428	.912
Sport	.236	-.106	.360	-.097	.364	.232	.384	.287	.332	.334	.896
Timber	-.827	-.683	-.249	-.317	-.732	-.590	-.550	-.557	-.707	-.308	.945
Picnic	.521	.118	.432	.228	.254	.192	.469	.279	.456	.509	.912
Walking	.380	-.033	.433	.058	.242	.122	.351	.198	.335	.441	.917
Wildlife	.453	.471	.171	-.114	.551	.369	.478	.547	.667	.430	.905
Tourism	.530	.294	.236	.022	.303	.230	.423	.358	.552	.476	.871
Mean r (excluding Timber)	.453	.192	.314	.024	.342	.234	.440	.337	.407	.436	

N.B. The signs have been reversed in this table so that an increase in preference is equivalent to an increase in the physical attribute. (The reversal is not needed for *Space*.)

32.1 Commentary on correlations and betas

In the correlations table (Table 131) the mean of the correlations between each physical attribute and the preference scales has been entered at the foot of each column. It is not strictly appropriate to average correlation coefficients from different points in the range because their importance is not linearly related to size. However, where they are closely similar, the mean is a useful guide and in this instance timber production, where the correlations are very different from the rest, has been excluded from the calculation.

The first general point to note is that the Multiple R's are remarkably high and it is clearly possible to predict a very satisfactory proportion of the variation in public preferences using the (mainly) physical attribute measures that are the stock in trade of the forestry landscape architect.

However, a caveat entered earlier must be repeated. These attribute predictors are not wholly 'physical' measures, in the sense that they would be if, for example, the percentage of conifers v. broadleaved trees were based on a direct count. They variously include a blend of 'artistic impression' within the scope of the attribute as defined and this is likely to be influenced by the overall aesthetic impact of the photograph. It is the latter, of course, that the public also is assessing and hence there may be some contribution to the correlations from this common source.

32.2 Distant landscapes

Genius loci is the most obvious example of an

attribute that is heavily laden with the aesthetic and accordingly producing some quite high correlations (Table 129), especially with Best picture, the most obviously aesthetic measure provided by the public ($r = .627$). However, as mentioned earlier, a similarly high Multiple R could be obtained even if four or five of the predictors, including this one, were omitted.

There is a virtually zero correlation ($r = .096$) between *Genius loci* and the public's assessment of landscape suitability for Timber production. Apart from these, the correlations are all fairly similar and quite high (mean $r = .555$). The only additional point worth noting perhaps is that good walking country has the relatively lowest measure of *Genius loci* ($r = .475$). Turning to the Betas, this predictor contributes moderately to all activities except Timber, where it appears to have no relevance, and to Sport, where it is unexpectedly higher.

Human intrusion has very low correlations with Picnic ($r = .047$), Walking ($r = 0.048$) and Sport ($r = .096$), so it is interesting to see that it is nonetheless an attribute that is important in predictive terms, presumably because of its uniqueness from the other attributes. The effect of the Betas is to emphasise the acceptability of *Human intrusion* for Sport and Walking but to downrate it for Picnic.

The landscapes seen as most suitable for timber production by the public are characterised by *Human intrusion* ($r = -.459$), an impression from the landscape that 'the hand of man has been present'. However, this attribute makes less predictive contribution to the Timber dimension than to all the other preference

scales. As might be expected, its main contribution is to the Getaway experience and to Tourism. In these and in all other cases except Timber, the effect of the Betas is positive, i.e. less intrusion equals greater preference or suitability.

Space is more or less equally correlated at a steady .2 - .3 level with all preference dimensions, but negatively in the case of Timber. Although variation is small, it is worth noting, because of its plausibility, that open space in distant views is less important for Wildlife and for Sport than for other activities.

Colour diversity is positively correlated with all the activity dimensions, but taken by itself there are large though predictable variations. For example, the relevance to Timber is slight ($r = .178$), whereas *Colour diversity* is highly correlated with the Best picture ($r = .729$) and Wildlife activities ($r = .723$).

When combined with other predictors, however, this attribute is given a negative weighting, except in the case of Tourism. The explanation probably lies in the fact that there are no fewer than four overlapping measures of diversity and of these, three are negatively weighted while the fourth, *Overall diversity*, is given a very high Beta weighting for all preference scales. It has to be concluded that although *Diversity* is an important predictor of all activity dimensions, when four closely similar variables are entered into a regression equation, some of them are used as suppressor variables.

The role of a suppressor variable in a regression equation is, by its negative weighting, to suppress in other predictors whatever variance is not represented in the criterion (preference scale) but which may be in some other predictor that correlates with the criterion.

Tourism is an interesting exception - it is best predicted by including positive values for *Age diversity* and *Colour diversity* as well as *Overall diversity*, although *Species diversity* acts as a suppressor.

Turning to the important physical attribute of *Broadleaved/conifer*, the direction of the correlation is, as expected, negative for timber production - i.e. suitability for Timber is predicted by a moderately high conifer rating ($r = -.331$). It is less expected that the Getaway and Sport dimensions should have low negative correlations, slightly favouring conifers. Also,

Walking, Picnic, Wildlife and Tourism are not influenced one way or the other by tree type. It does have a very low but positive correlation with Best picture, i.e. in favour of broadleaved trees ($r = .138$).

The next attribute is *Shape*. The organic/natural end of this dimension is correlated moderately with Getaway ($r = .337$), Sport ($r = .373$), Picnic ($r = .414$) and Walking ($r = .353$), and more substantially with Wildlife ($r = .506$), Tourism ($r = .539$) and Best Picture ($r = .623$). Only Timber is an exception and in this case, as with *Age diversity*, there is zero correlation. The highest correlation is with Best Picture, the most obviously aesthetic dimension. In terms of Betas, the largest contribution is to Getaway, but this and most of the other Betas are hard to interpret because they are negative and, like the several *Diversity* contributions, must have been incorporated into the equation in the form of suppressor variables.

The same has to be said of the final physical attribute - *Scale*. There are moderate correlations (mean $r = .392$) between Scale and most of the preference dimensions; the exception is Timber, where there is a low negative correlation ($r = -.106$). Landscapes judged by the public to be most suitable for timber production are judged by the landscape architects to be relatively 'out of scale' ($r = .106$). Most of the Betas are negative. The effect in the case of Timber, where the correlation is negative, is to give this variable a positive weighting. It also gives a positive weighting for the Getaway preference scale.

32.3 Close landscapes

The Multiple R's for close landscapes are not quite so high as for distant ones, but all fall within the satisfactory range of .85 - .95. In terms of prediction, the two physical attributes, *Space* and *Shape* assume much greater importance than in the distant landscapes.

Genius loci is very highly correlated, in a negative direction, with Timber ($r = .827$). Clearly, at close range, the public perception of a landscape suitable for timber production corresponds with that which the landscape architect perceives 'lacking in strength of character' or 'having no spirit of place'.

The converse, where the correlations are positive and relatively high are Getaway ($r = .573$), Tourism ($r = .530$) and Picnic ($r = .521$). The lowest correlation with *Genius loci* is

Sport/Recreation ($r = .263$).

Turning to *Human intrusion*, the activity scale showing the highest correlation (i.e. minimum intrusion), ($r = .471$), is Wildlife and this is as expected. Getaway, Tourism and Picnic follow shortly thereafter. *Human intrusion* is unrelated to Walking and to Sport/Recreation. Timber production suitability is highly correlated in a negative direction ($r = -.683$), suggesting evidence of human intervention in landscape planning.

Space is positively correlated with all the activities except Timber, where suitability is more likely to be associated with closely-planted, dense landscapes. The most 'open' landscapes are seen as suitable for Sport, Picnic and Walking. Interestingly, the procedure detects that the least open landscapes are suitable for Wildlife ($r = .171$). These correlations play an important role in the overall prediction, each having large, positive Betas.

Colour diversity is much less important in close than in distant landscapes; in fact, apart from the expected negative correlation ($r = -.317$) with timber production, most of the correlations are very low, with a mean of .024.

Age diversity is probably more easily assessed with accuracy in close landscapes and it assumes greater importance than in the distant ones. The mean correlation of .234 fairly represents the positively related activities although again, it is highly plausible that Wildlife has the highest correlation with *Age diversity* ($r = .551$). Timber, of course, has a very high negative correlation ($r = .732$), confirming high uniformity.

Species diversity shows a very similar pattern to that of *Age diversity*, although correlations are generally lower (mean $r = .234$). Wildlife has the highest positive correlation ($r = .369$) and Timber again has a high negative correlation ($r = -.590$).

Overall diversity is positively related to all activities and the mean correlation of .440 fairly represents them. Wildlife is again clearly highly correlated ($r = .478$), but in *Overall diversity* is slightly exceeded by Getaway ($r = .540$).

The Betas for diversity are again complicated, with mainly small but positive weightings for *Overall diversity* contrasted with mainly negative weightings for *Colour diversity* and *Age diversity*, presumably because these serve

as suppressor variables in the same way as in the distant landscape set.

The *Broadleaved/conifer attribute* is easily interpreted. Clearly, the inclusion of a proportion of broadleaved trees is significantly more important to the close views than the distant views and all activities show a positive correlation (mean $r = .337$), except for Timber ($r = -.557$). The highest correlation ($r = .547$) is with Wildlife. It is interesting also that the lowest apparent need for the inclusion of broadleaved trees occurs with Walking ($r = .198$), giving added confirmation to the low correlation between Walking and *Species diversity* and other forms of diversity. The Beta weights are moderately large for this attribute and all positive except for Timber.

Shape as a physical attribute of close landscapes is also straightforward. It appears that the organic/natural end of the continuum is important for all activities (except Timber), but especially for Wildlife ($r = .667$), Getaway ($r = .594$) and Tourism ($r = .552$). Timber landscapes are again strongly in the opposite direction, i.e. towards 'geometric lines'. Betas are relatively high and all positive.

Finally, *Scale* is a subtle attribute and one that might be expected to have a quite strong aesthetic component. It is positively and moderately correlated with all activities (except Timber) and the mean correlation ($r = .436$) fairly represents the trend. However, if it were to be predicted in which activities a 'sense of scale' would be most important, the choice would probably fall on Picnic and Tourism and this is indeed the case, with $r = .509$ and $r = .476$ respectively.

33. The relationship between physical attributes and public preferences: correspondence analysis

The first step in considering the relationship between the physical character of landscapes and public preferences is to plot the landscapes in relation to the physical attributes. The next is to enter the landscape preferences into the equation.

The most encouraging result from the correspondence analysis of physical attributes is that the same basic pattern of relationships between the physical attributes emerges for both sets of landscapes, the distant and the close. The two main combined plots, showing

Relationship between physical attribute scales (C) and landscapes (R)

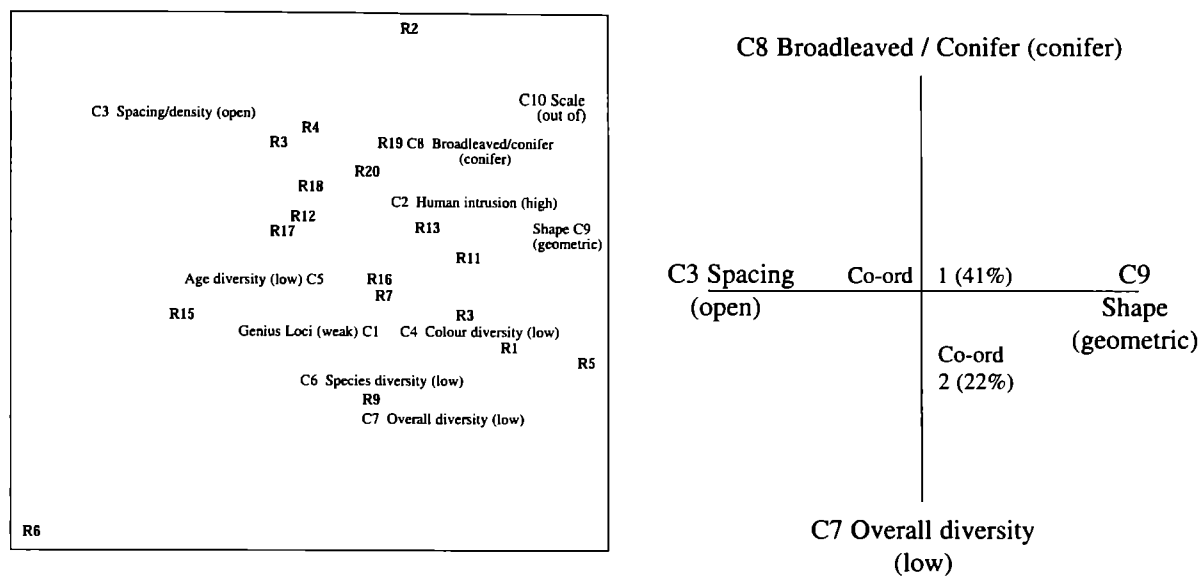


Figure 21 Distant Sets 1 (1-10) and 3 (11-20)

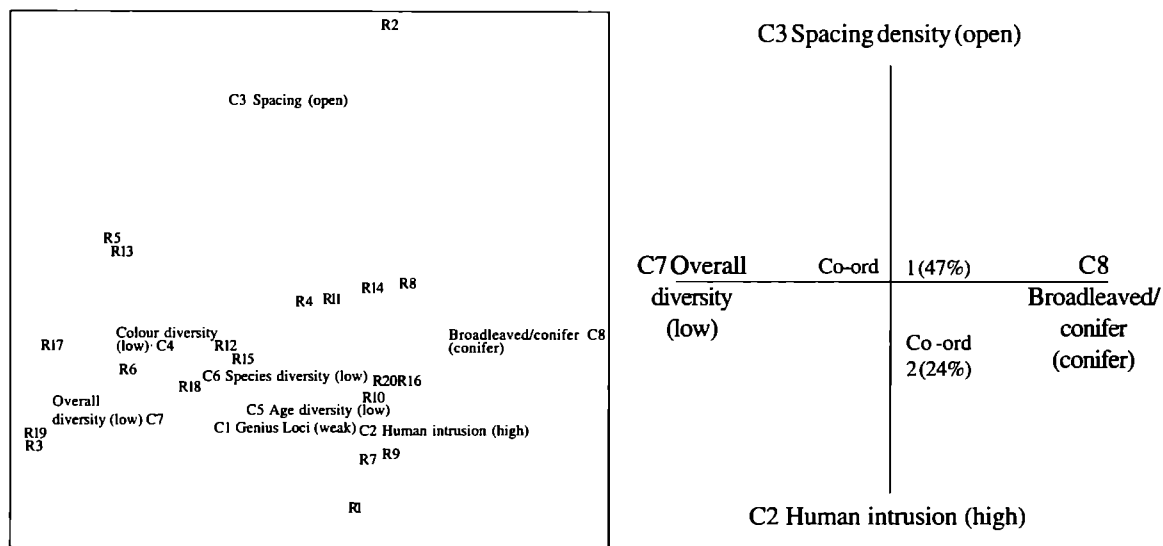


Figure 22 Close Sets 2 (1-10) and 4 (11-20)

landscapes and physical attributes, are shown in Figures 21 and 22.

The comparison is slightly weakened because the landscape architects were unable to assess some of the close landscapes on the physical attributes *Scale* and *Shape*, and they were omitted from Sets 2 and 4. Also, in the case of the distant landscapes, 10 (bare mountain tops) and 14 (open moorland) could not be assessed on some of the physical attributes and this set is reduced to N = 18 for the purposes of the analysis. (In the correlational analysis reported earlier, a 'missing data correction' was applied. This allocates a mean score where data is absent, so that the correlation is not influenced.)

It is extremely important to note when

examining the plots of these correspondence analyses that the physical attributes were rated from 1 = 'good' to 5 = 'poor' so far as the evaluative aspects of the scales are concerned, e.g. strong *Genius loci* or high *Diversity* = 1 (*Spacing* was an exception; 1 = open, 5 = closed in). The public preferences were scaled in the reverse direction, i.e. 20 = 'good'; 1 = 'poor'. In the correlation tables shown earlier, this was easily dealt with by simply reversing the signs. The simplest way of presenting the correspondence plots is to reverse the attribute label where appropriate.

In both the combined sets, 1 and 3 and 2 and 4, there is a highly significant co-ordinate that goes from *Overall diversity* (low) to *Broadleaved/conifer* (conifer). There is

clustering at the overall diversity end of the dimension due to rather high correlation between the various aspects of diversity; colour, shape, age, species, etc. *Genius loci* also appears to be closely related to diversity.

In both sets, there is another co-ordinate in the orthogonal plane. It represents a dimension from *Spacing/density* (open) on the one hand, to *Shape* (geometric) on the other. In Sets 2 and 4, where *Shape* was not included, its role on this dimension is taken over by nearby *Human intrusion*. It is useful confirmation to note that this attribute is in a similar position in the distant plot, though less extreme.

There is a more substantial difference between the distant sets and the close sets, not already mentioned. The first and most important co-ordinate (i.e. the one that accounts for most variance) in the distant sets is the *Spacing/density* (open) to *Shape* (geometric) one; whereas in the close set, this co-ordinate

takes second place to the one concerned with *Overall diversity* (low) to *Broadleaved/conifer* (conifer).

The amounts of variance accounted for by only two dimensions, in each plot, is 63% and 71% respectively. This implies an orderly structure.

It is an unexpected result, already demonstrated by the correlational analysis, that 'predominantly coniferous' should be associated not with low but with high *Diversity*. It is also closer to the strong *Genius loci* than the weak, demonstrating that landscape architects (at least those employed by the Commission) give a favourable assessment to coniferous landscapes. This despite their apparent acknowledgement that *Human intrusion* (presumably not of a discordant kind; see definitions) is relatively high and that there is also a slight tendency for coniferous landscapes to be out of *Scale* and geometric in *Shape*.

Table 132 – Means and ranked preferences for landscapes (Rank 1 = high preference)

Distant landscapes (Sets 1 and 3)															
No.	Getaway		Sport		Timber		Picnic		Walking		Wildlife		Tourism		Best pic *
Set 1	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	rank
1	9.5	14.5	9.5	16	12.6	5	6.1	19	9.5	16	9.9	16	6.7	18	18
2	13.6	6	13.2	5	11.2	10	11.4	6	13.4	6	12.6	8	14.7	3	6
3	11.7	10	11.0	10.5	11.1	11.5	9.5	12	11.7	12	13.4	7	13.2	8	8
4	15.0	3	13.9	4	7.8	15	14.7	3	14.4	3	13.8	6	17.0	2	1
5	6.6	20	8.1	19	6.4	17	6.8	17	6.9	18.5	6.9	20	5.3	19	19
6	12.8	8	11.9	7	7.7	16	13.7	5	14.6	2	14.7	1	14.1	7	3
7	9.1	16	10.1	13	11.1	11.5	8.9	15	10.0	15	10.5	12.5	8.8	15	15
8	11.4	12	11.0	10.5	12.2	6	10.1	10	11.5	14	10.4	14	9.8	14	14
9	8.9	17	9.8	15	12.0	7	9.4	13	9.4	17	11.9	11	8.3	16	11
10	14.1	4	8.7	17	3.1	19	8.2	16	11.9	11	9.6	17	14.4	6	-
Set 3															
1	9.5	14.5	9.9	14	14.5	1	10.0	11	11.6	13	10.5	12.5	10.5	13	12
2	9.7	13	10.4	12	12.9	4	9.2	14	12.2	10	12.3	9	11.3	11	9
3	10.9	11	11.0	10	11.6	9	10.2	9	12.9	8	10.0	15	10.8	12	16
4	8.2	18	8.4	18	2.9	20	3.7	20	6.3	20	7.2	19	4.4	20	-
5	7.8	19	6.9	20	4.1	18	6.6	18	6.9	18.5	8.3	18	8.0	17	17
6	13.3	7	11.4	8	10.9	13	10.9	7.5	12.5	9	14.0	4	11.9	10	7
7	15.3	2	14.6	2	11.9	8	15.6	1	13.6	5	14.1	3	17.2	1	2
8	13.7	5	14.4	3	10.4	14	14.9	2	14.1	4	12.1	10	15.5	4	4
9	12.7	9	12.9	6	13.4	2	10.9	7.5	13.1	7	14.3	2	12.3	9	10
10	15.7	1	15.0	1	13.2	3	14.2	4	15.5	1	13.9	5	15.0	5	5

* The 'Best picture' mean ranking is derived from the household interviews.

Table 132 - cont'd

Close landscapes (Sets 2 and 4)														
No.	Getaway		Sport		Timber		Picnic		Walking		Wildlife		Tourism	
Set 2	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	3.3	20	3.4	20	15.0	3	1.9	20	3.6	20	2.6	20	3.7	19
2	10.5	12	9.3	14	2.3	20	9.5	11	10.5	13.5	11.2	13.5	10.0	13.5
3	11.9	8	10.9	11.5	8.4	15	6.7	16	9.2	15	15.5	1	11.6	10
4	11.2	11	12.7	5	13.5	6	11.1	6.5	12.5	10	13.7	6	11.8	8.5
5	9.9	13	11.4	9.5	5.4	17	8.4	13	11.3	12	12.3	10	10.5	12
6	14.0	3.5	13.3	2	5.3	18	13.5	3	15.4	3	15.1	2.5	15.3	5
7	8.8	15	12.0	7	14.9	4	7.0	15	12.6	9	8.4	17	9.2	15
8	14.0	3.5	14.1	1	12.3	9	14.7	2	17.1	1	13.2	9	16.0	2
9	5.0	19	5.9	18	16.3	1	3.0	19	4.4	19	6.1	18	3.4	20
10	15.8	1	11.5	8	8.5	14	11.1	6.5	11.4	11	15.1	2.5	15.7	3
Set 4														
1	7.1	17	4.6	19	5.1	19	7.2	14	6.8	16	5.6	19	8.3	16
2	13.8	5	8.7	15	9.3	13	13.1	4	12.9	8	13.6	7.5	15.5	4
3	12.4	6.5	10.3	13	6.2	16	8.5	12	10.3	14	14.0	4	12.4	7
4	12.0	9	13.2	3.5	13.4	7	10.6	8.5	13.5	5	11.5	12	10.0	13.5
5	11.0	10	11.4	9.5	15.1	2	10.6	8.5	13.2	7	11.0	15	11.8	8.5
6	12.4	6.5	10.9	11.5	12.7	8	11.6	5	13.8	4	13.6	7.5	13.5	6
7	14.6	2	13.2	3.5	10.7	11	16.3	1	15.7	2	13.8	5	16.2	1
8	9.4	14	12.3	6	12.1	10	10.1	10	13.4	6	11.2	13.5	11.0	11
9	7.3	16	7.1	16	9.4	12	4.7	17	6.0	18	11.7	11	7.4	18
10	6.4	18	6.5	17	14.8	5	4.3	18	6.5	17	10.2	16	7.9	17

33.1 The relationship between physical attributes and public preferences

We turn next to consider the relationship between this structured pattern of physical attributes and the public's preferences for each landscape. The device adopted for this purpose, to assist in visual presentation, is to superimpose a line against each landscape point on the plots to represent the mean preference. Preference has been rank ordered from 1-20,

where 1 = most preferred; this is represented by a long line, and the least preferred landscape with a short line. The ranked preferences are shown in Table 132.

Separate plots are shown for the seven activity dimensions for which preferences were assessed, together with the Best picture ratings from the household survey, making eight dimensions for distant landscapes. See Figures 23-37.

(Distant sets 1 (1-10) and 3 (11-20))

R6 —————

C3 Spacing/density (open)

Age diversity (low) C5

R15 —

Genus Loci (weak) C1

C6 Species diversity (low)

C7 Overall diversity (low)

R19

R9 —

C4 Colour diversity (low)

R5 —

R1 —

R8 —

R7 —

R16 —

R17 —

R12 —

R18 —

R20 —

R19C8 Broadleaved/conifer (conifer)

R3 —

R4 —

R2 —

C10 Scale (out of)

GETAWAY

R2

C10 Scale
(out of)

C3 Spacing/density (open)

R4

R3 — R19C8 Broadleaved/conifer
 R20 (conifer)

R18 — C2 Human intrusion (high)

R12 —

R17 — R13 — Shape C9
 (geometric)

R11

Age diversity (low) C5 R16

R15 - R7

R8

Genius Loci (weak) C1 C4 Colour diversity (low)

R1

C6 Species diversity (low)

R9

C7 Overall diversity (low)

R5

R6

SPORT & RECREATION

R6 —

C3 Spacing/density (open)

R4 —

R3 — R19C8 Broadleaved/conifer (conifer)

R20 —

R18 — C2 Human intrusion (high)

R12 —

R17 — R13 — Shape C9 (geometric)

R1 —

Age diversity (low) C5 R16 —

R7 —

R15 — R8 —

C4 Colour diversity (low)

R —

C6 Species diversity (low) R9 —

C7 Overall diversity (low)

R5 —

TIMBER

R6

C3 Spacing/density (open)

R3

R4

R19C8 Broadleaved/conifer (conifer)

R20

R18

R12

R17

R13

Shape C9 (geometric)

R1

Age diversity (low) C5

R16

R7

R8

R15

Genus Loci (weak) C1

C4 Colour diversity (low)

R5

C6 Species diversity (low)

R9

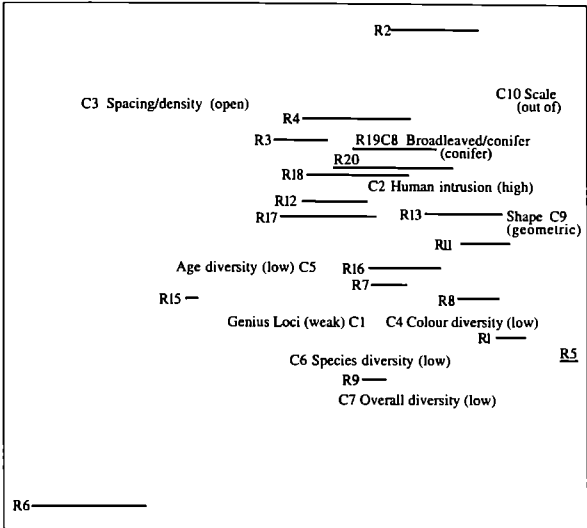
C7 Overall diversity (low)

R2

PICNIC

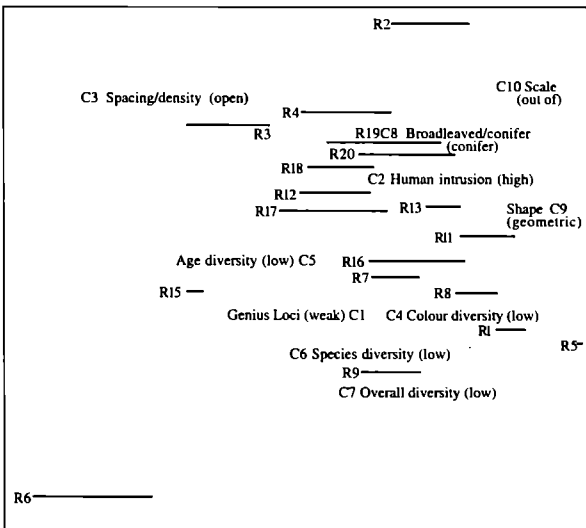
160

Figure 27



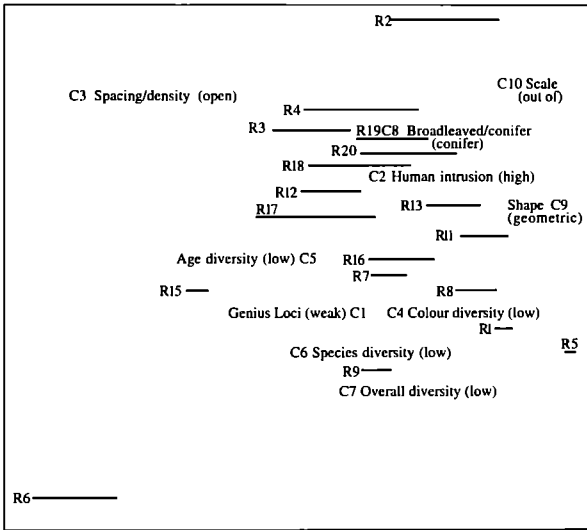
WALKING

Figure 28



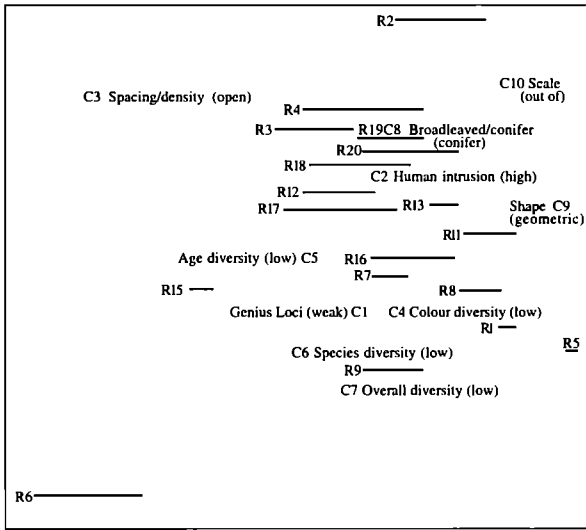
WILDLIFE

Figure 29



TOURISM

Figure 30

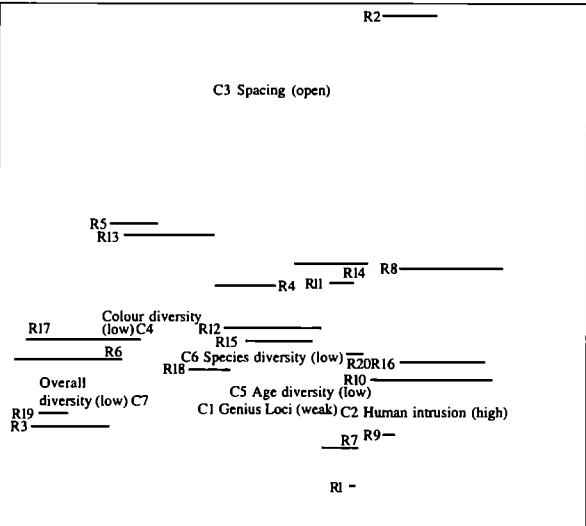


BEST PICTURE

Preference ranking is shown by length of line (long = most preferred)
Landscapes 10 and 14 not included

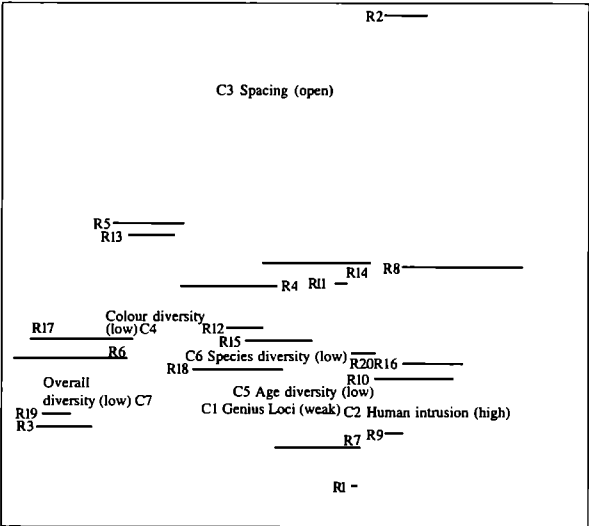
Relationships between physical attribute scales (C), activities (R), and preferences
(Close sets 2 (1-10) and 4 (11-20))

Figure 31



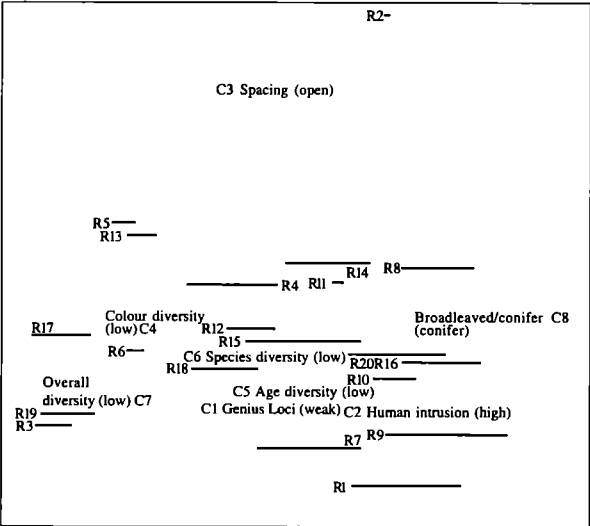
GETAWAY

Figure 32



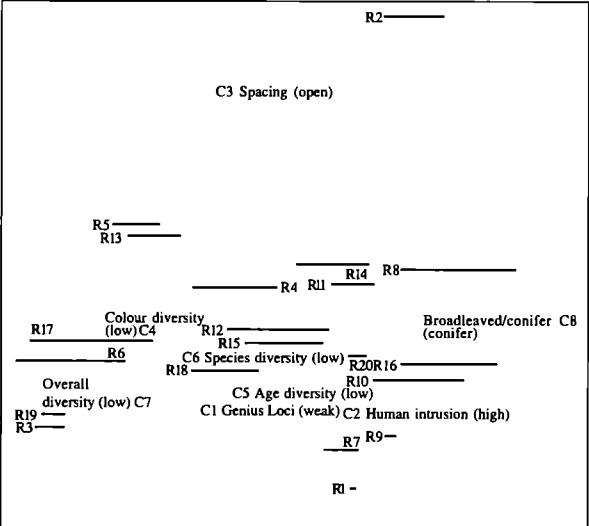
SPORT & RECREATION

Figure 33



TIMBER

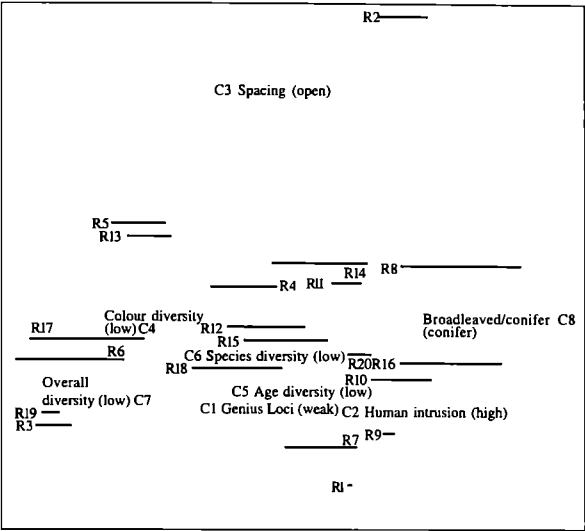
Figure 34



PICNIC

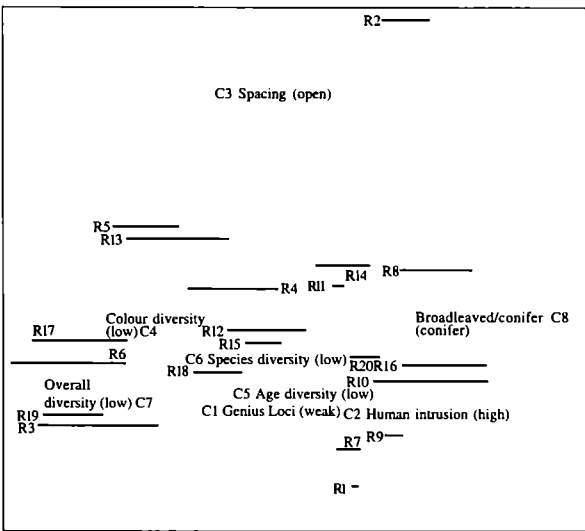
Preference ranking is shown by length of line (long = most preferred)

Figure 35



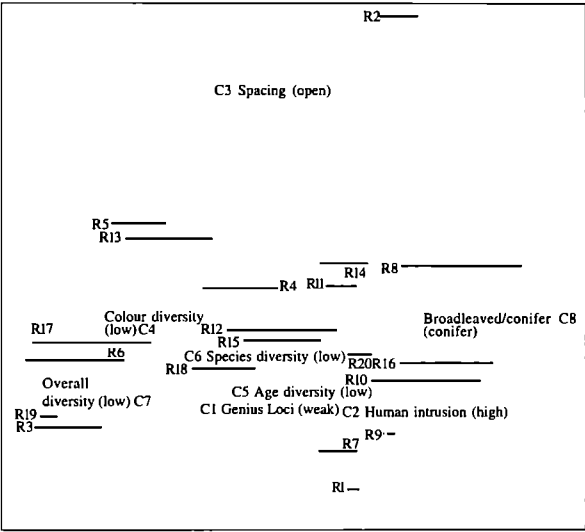
WALKING

Figure 36



WILDLIFE

Figure 37



TOURISM

33.2 Distant landscapes

There is a general trend observable in the distant landscapes. The preference lines diminish in length across the diagonal from upper left to lower right. The most preferred landscapes are, for most activities, in the upper left sector, characterised by open *Spacing* and *Conifer*; by high *Diversity* and strong *Genius loci*. They are distanced from geometric *Shape*. Conversely, the least preferred landscapes are in the sector characterised by low *Diversity* and geometric *Shape*. It is noticeable that landscape 6(1.6), the autumnal beechwood, having been assessed as very low in diversity and very high in open space, fits this pattern; but it is virtually 'off the map' so far as its physical attributes are

Preference ranking is shown by length of line (long = most preferred)

Note: In the following sections, the numbering of landscape photographs will follow the Distant (1-20) and Close (1-20) system for easy reference to the Correspondence Plots, followed in parentheses by the Distant 1(1-10) and 3(11-20) and Close 2(1-10) and 4(11-20) system for easy reference to the photographs reproduced on pages 122-125.

concerned, and this confirms the earlier comment that it should have been included in the close set, where relativities would apply.

Overall, there is general confirmation of the pattern of correlations shown earlier, given that in the correspondence plots, high correlation is represented by close proximity and vice versa. A number of points may be made about the individual activity maps.

Looking at *Getaway*, the most preferred landscape, 20 (3.10), is almost wholly coniferous, but has plenty of diversity and, possibly critical for the wilderness *Getaway* experience, it has mountains. It is a pity landscape 10(1.10) could not

be included because this wholly mountainous landscape was given the top preference rating for *Getaway* activity. Landscapes 4(1.4) and 17(3.7), other high preference ones, both have strong water features. They are also assessed as in *Scale* and in open *Spacing*.

Sport and *Recreation* shows a very similar distribution to *Getaway*. Variations are minor.

The *Timber* plot, as already shown in the correlational analysis, gives a markedly different picture. For the most part, those landscapes judged most suitable for other activities are relatively unsuitable for timber production. There are exceptions. Landscape 20(3.10), the generally favourite mountain and river landscape, retains a high rating because of its clear though organic shapes of plantation forestry on the hillside. Landscape 17(3.7), another favourite, slips only a little, presumably because attention moves from the foreground stretch of water to the distant conifer slopes. However, the dense plantation of broadleaved trees, landscape 9(1.9), moves sharply up in suitability. Landscape 11(3.1), with a geometric shape of very closely planted conifers, moves to first place from a position well down the order on all other activity dimensions, in spite of having a strong foreground of broadleaved trees. Landscape 1(1.1) is also judged very suitable. This is highly geometric in *Shape* and densely planted. It gives way to Landscape 11(3.1), perhaps because the public perceive the high terrain to be less fertile in the latter case. Overall, there is a discernible shift towards the geometric end of the *Space* co-ordinate.

The *Picnic* plot is similar to *Getaway*, except for some minor adjustments at the top of the order, with a movement towards more open spacing with 17(3.7) and 18(3.8), both with expansive stretches of water, moving into first and second place.

The *Walking* plot is, predictably, also very similar to the *Getaway* one, although it is noticeable that the autumnal beechwood 6(1.6) is given a very high rating. Also, landscape 17(3.7) slips from rank 2 to rank 5 because it offers no obvious scope for walking.

Turning to *Wildlife*, it is sometimes argued that the public perceives plantation forestry as inhospitable to wildlife. The range of landscapes included in the study do not provide a decisive test of this hypothesis because the few wholly broadleaved examples, 9(1.9), 5(1.5) and 6(1.6), tend to lack some of the other physical

attributes, notably *Diversity* that make landscapes attractive to the public.

Notwithstanding, it is noticeable that the autumnal beechwood 6(1.6) moves into first place and the tree species may be the decisive influence. Apart from this, it is again the general region of the plot allocated to conifers and open spacing where the high preferences are to be found. The second choice, 19(3.9), has considerable conifer plantation but has a very strong foreground of 'natural'-looking broadleaved trees. It is only moderately favoured for other activities. However, the general trend in the *Wildlife* plot is less steep than in *Getaway*, more similar to *Timber*. The visual composition is less important; low diversity is more acceptable, witness the promotion of the distinctly 'wild' landscape 16(3.6) into fourth place, and *Human intrusion* is less acceptable, witness the demotion of 18(3.8), which includes a road, into tenth place.

The *Tourism* and *Best picture* plots are very similar. The main discernible difference from the other plots is the public's emphasis on the importance of water. Landscapes 17(3.7) and 4(1.4) move into first and second place respectively and 20(3.10), which is more 'wild' moves down a little. Landscape 16(3.6), also 'wild', receives its lowest rank (tenth) in the tourism plot. Although the effect is slight, it will be observed that these two plots confirm empirically what may be described as the 'conventionally attractive' in landscape perception, i.e. they have the highest preferences in the upper and left hand regions of diversity and openness.

33.3 Close landscapes

The preference pattern is much less clear when we turn to the close landscape plots, despite the fact that the underlying structure of physical attributes is much the same. It will be recalled that the horizontal co-ordinate corresponds to the vertical one in the distant plots, i.e. from *Diversity* (low) to *Broadleaved/conifer* (conifer) and it accounts for the higher proportion of the variation in the physical attributes.

It should be emphasised that this co-ordinate is certain to have a much more powerful effect on public appraisal, because the respondents are virtually invited to imagine themselves engaging in various activities in close contact with the trees, as opposed to the much more general perspective of the distant landscapes, where the appraisal is likely to be influenced more by the general form and composition of

the scenery. Again, it may be argued that distant landscapes are more commonly presented as 'images' and their aesthetic qualities have become more conventionalised.

It was shown earlier, in the correlation table (Table 127) that there is a strong overall preference for broadleaved species, so far as the *Getaway* activities are concerned. On the correspondence plot, this should be represented by a progressive lengthening of the preference lines, moving from left to right of the space. This trend is partially evident. The landscapes that clearly include broadleaved trees 3(2.3), 6(2.6), 17(4.7) and 13(4.3) are placed in the left hand region. Another high preference landscape, 12(4.2), the bluebell wood, was rated by the landscape architects at 2.7 on the broadleaved conifer dimension, so that it is also appropriately placed. However, there are also some high preference landscapes 8(2.8), 10(2.10), 14(4.4) and 16(4.6) located towards the coniferous end of this co-ordinate.

The trend becomes clearer, however, if we recognise the simultaneous effect of the second, vertical co-ordinate. This indicates open *Spacing* towards the upper part of the plot and it is here that most of the high conifer/high preference landscapes are located. The point can be made most simply by referring to landscape 8(2.8), which is wholly coniferous (4.8) but also open spaced (4.0) - it comes 4th in rank order of preference. Conversely, landscape 1(2.1), also wholly coniferous (4.7) has little open space/high density planting (2.0) and is placed 17th in rank order of public preference.

If this is the general pattern, there are two maverick cases. Landscape 2(2.2), the expanse of flat limestone rock, is rated by the landscape architects as having much open space, in fact more than any other (4.3). Its position in the plot faithfully represents this and its moderately coniferous rating (3.4), but it is not rated very high in preference (12th). Landscape 10(2.10), a second maverick landscape, is moderately coniferous, has high overall diversity and dense planting, but it unexpectedly receives the highest preference for *Getaway* activity. In this case, it is tempting to question the architects' judgement of high overall diversity (2.1), but an easier explanation lies in the observation that the high preference is due to the presence of water. This is known to be a powerful influence and it occurs only once in the twenty close landscapes. Another possible physical attribute (also excluded from our predictive equations) is 'wildness' which is high in landscape 10(2.10)

and may also be expected to enhance its preference score for *Getaway*. Additional support for the latter suggestion is that the landscape also gets a high preference rating for *Wildlife*, but, paradoxically, also for *Tourism*.

The *Sport/Recreation* plot is basically similar to the previous one, except that landscapes in the upper right sector 4(2.4), 8(2.8) and 14(4.4) gain significantly in preference, reflecting the importance of open spacing and low density for these kinds of activity. Landscape 7(2.7), with its very broad grassy clearway, moves from 15th to 7th place, possibly for the same reason. The architects' assessment of its close spacing (2.4) may have been based more on tree density than on proportion of open space.

The *Timber* plot is easily described; it appears to be a mirror image of the other activity plots, with preference (suitability) high in the right hand sector and low at the broadleaved, low diversity end of this main horizontal co-ordinate.

The change in the vertical co-ordinate is particularly marked at the *Human intrusion* end, but less so at the open *Spacing* end. These landscapes, 2(2.2), 4(2.4), 8(2.8), 11(4.1) and 14(4.4), are judged to be less suitable for timber production than for *Sport* and *Recreation*, and more on a par with *Getaway* and *Wildlife*, presumably because of their openness on the *Spacing* co-ordinate.

For *Picnic* activity there is no consistent discernible difference in the pattern of the plot when compared with *Getaway*, except that 10(2.10), the dense coniferous growth with stream, is in first place for *Getaway* preference. In the *Picnic* plot, the open broadleaved woodland 17(4.7) and the generally popular sparsely planted mature conifer landscapes 8(2.8) and 16(4.6), are the most preferred. One point to note is that landscapes 3(2.3) and 13(4.3) move sharply down the preference order, presumably because of their dense undergrowth which, though highly favoured for *Wildlife* and moderately for *Getaway*, would provide an uncongenial setting for 'dejeuner sur l'herbe'.

In the *Walking* plot, the consistency of the basic pattern is increased because the maverick, densely coniferous landscape with stream, 10(2.10), is so obviously unsuited to walking that it moves from 1st preference rank in *Getaway* to 10th for *Walking*.

Also, there are noticeable increases in preference

for those landscapes with pathways and vice versa, which are represented by the ratings on *Spacing*.

The open conifer landscape with pathway, 8(2.8), assumes the 1st rank in this plot and this strengthens the relationship between preference and the vertical dimension. However, the autumnal broadleaved woodland, 13(4.3), also at the open end of this *Space* co-ordinate moves down from 6th in the *Getaway* plot to 13th in this plot, bringing it in line with *Sport/Recreation*. This is possibly because of its obvious lack of pathways. Landscape 3(2.3) moves down from rank 8 (*Getaway*) to 15th - almost certainly for the same reason. Conversely, landscape 18(4.8) moves up in favour, because it has a prominent pathway. Overall, the walking plot has some marked differences from *Getaway*, but more closely resembles *Sport/Recreation*.

The *Wildlife* plot has perhaps the most consistent relationship with preferences. This is because landscape 3(2.3), the dense, broadleaved woodland with heavy undergrowth but low diversity moves into the 1st rank. This strengthens the general trend of preference along the horizontal co-ordinate, although 10(2.10) (dense conifers with stream) remains a maverick in being ranked 2nd. Also, landscape 8(2.8), the sparsely-planted, mature conifers, loses favour in relation to other activities because it is open as, indeed, to a lesser extent, do the other similar landscapes, 11(4.1) and 14(4.4). However, landscape 4(2.4), also open, gains favour to rank 6th for *Wildlife*, presumably because of its heavy undergrowth. The overall effect in this co-ordinate is to shift the preference away from the open *Space* region.

Finally, the *Tourism* plot holds no surprises. It is closely similar to *Getaway* and, in fact, the only differences apply to landscape 14(4.4), which is perhaps too informal for a tourist image and 8(2.8), which gains a little in preference for no obvious reason

33.4 Summary of correspondence analyses

The structures underlying the assessments by landscape architects of ten physical attributes is similar for both distant and close landscapes. Both have one dimension extending from low

diversity, broadleaved, to high diversity, coniferous woodland. This is the more important dimension for close landscapes. Both have a second dimension, extending from geometric shape and little open space to organically shaped, more open spaced landscapes. This is the more important dimension for distant landscapes.

As shown earlier by the correlational analysis, this pattern of physical attributes is related to public preferences, although the pattern is clearer in the distant than in the close sets.

In the former, public preference increases progressively with increases in both dimensions. The public's liking for coniferous landscapes is unexpected, but choices were possibly constrained by a lack of diverse but wholly broadleaved examples. It should be noted also that, though significant, this dimension is of only secondary importance for distant views. This is to be expected because people are not directly engaged with the trees, but concerned with the general composition. This finding is broadly confirmed by the correlational analysis but only *Getaway*, *Sport* and *Walking* showed positive correlations there with conifers, while *Picnic*, *Wildlife* and *Tourism* were not influenced one way or the other.

In the close landscapes, high preference is associated either with *low diversity broadleaved trees* or with *high diversity coniferous trees*, providing the latter are relatively open spaced.

There is ample evidence that the public can make plausible, fine discriminations from colour photographs, not only of a general aesthetic kind, but of suitability for different activities. Also, that these judgements are consistently related to the broad physical parameters used by the Forestry Commission.

The next step should be to test these inductive findings by a more deductive approach, i.e. by presenting contrasting sets of photographs that strongly exemplify the physical attributes that appear to govern preference; and also to explore whether these attributes can be measured more consistently by landscape architects or more objectively by other means.

Visiting a forest brings enjoyment to many people. But what are the intrinsic attractions of forests and woodlands? Landscape, the natural environment, exercise, sport, a sense of 'getting away from it all', are among the factors that have a positive bearing on why people choose to visit forest areas.

In order to gain a clearer understanding of the value of forests for visitor recreation the Forestry Commission funded a research project to evaluate public perceptions, attitudes and preferences in forests and woodlands. Information was gathered in four main ways.

1. Focus groups were convened in Dundee, Denholm, Southampton and Ipswich. 2. Expert seminars were held in Scotland and in England. 3. A household survey was undertaken in four areas of Britain. 4. A landscape preference study using colour photographs was carried out at Forestry Commission visitor centres.

This Technical Paper presents the background to the project, and the results and analyses of the research. It will provide a comprehensive reference on the subject of forest visitor preferences for many years to come.

